

ML5590/91

USER'S GUIDE



OKI

PREFACE

Every effort has been made to ensure that the information in this document is complete, accurate, and up-to-date. The manufacturer assumes no responsibility for the results of errors beyond its control. The manufacturer also cannot guarantee that changes in software and equipment made by other manufacturers and referred to in this guide will not affect the applicability of the information in it. Mention of software products manufactured by other companies does not necessarily constitute endorsement by the manufacturer.

While all reasonable efforts have been made to make this document as accurate and helpful as possible, we make no warranty of any kind, expressed or implied, as to the accuracy or completeness of the information contained herein.

The most up-to-date drivers and manuals are available from the Oki Europe website:

<http://www.okieurope.com>

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As an Energy Star Program Participant, the manufacturer has determined that this product meets the Energy Star guidelines for energy efficiency.



This product complies with the requirements of the Council Directives 89/336/EEC (EMC) and 73/23/EEC (LVD) as amended where applicable on the approximation of the laws of the member states relating to electromagnetic compatibility and low voltage.

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NOTES, CAUTIONS AND WARNINGS

NOTE

A note appears in this manual like this. A note provides additional information to supplement the main text which may help you to use and understand the product.

CAUTION!

A caution appears in this manual like this. A caution provides additional information which, if ignored, may result in equipment malfunction or damage.

WARNING!

A warning appears in this manual like this. A warning provides additional information which, if ignored, may result in a risk of personal injury.

INTRODUCTION

- › Extremely reliable, durable operation: 20,000 hours Mean Time Between Failures (MTBF) at 25% duty cycle and 35% page density.
- › Advanced paper handling, with built-in rear push tractor and zero-tear forms capability.
- › Very high print speeds:
 - › High Speed Draft (HSD) Mode: **420 cps**
 - › Utility Mode: **315 to 472.5 cps**
 - › Letter Quality (NLQ) Mode: **105 to 210 cps**
- › This rugged 24-pin printer can meet the needs of harsh and demanding environments.

FEATURES / TIPS

Forms Tear-Off

The Forms Tear-Off feature allows a printed continuous forms page to be torn off without wasting paper or adjusting the printer.

When printing stops, Forms Tear-Off automatically moves the paper to align the perforation with the tear bar (located under the access cover), after a time interval which you select through the menu.

Paper remains in the tear-off position until the printer receives more data. Then, the paper moves back down for printing.

This feature has to be enabled.

Paper Park

Your printer's Paper Park feature allows you to print a single sheet (cut-sheet) page without removing continuous feed paper from the printer.

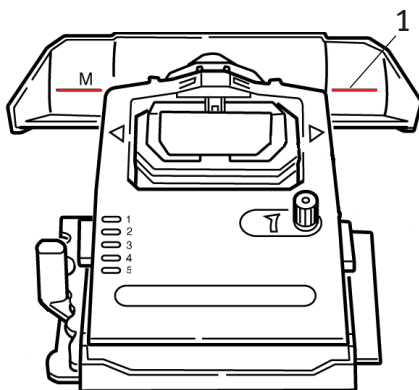
For more information, see "Paper Park" in "Using your Printer".

Top of Form (TOF)

Top of Form (TOF) sets the print start position. The factory default is 1" from the top.

The TOF can be changed in increments of $1/144$ ", for a single print job or set to a new default. The overall amount of adjustment is limited to avoid paper jams.

The first line prints at the red line of the plastic paper shield (1) on the printhead.



For more information, see “Top of Form (TOF)” in “Using your Printer.”

NOTE

The **Forms Tear-Off** and the **Top of Form** settings interact. For more information, see “Top of Form (TOF) and Forms Tear-Off” in “Using your Printer”.

Turning the Platen Knob

Always turn the printer off before turning the platen knob! If you turn the platen knob when the printer is on, the Top of Form will misalign.

Controlling Access to the Printer

- › You can control access to the printer by changing the setting for the Operator Panel Function in the Menu from Full Operation (the factory default) to Limited Operation.
- › When Limited Operation is selected, the PRINT QUALITY and CHARACTER PITCH keys don't work. This prevents these settings from being changed from the control panel when several people are using the printer.

For more information, see “Changing the Menu Settings” in “Using your Printer”.

PRINTER DRIVERS

EMULATIONS

The factory default emulation for your printer is Epson LQ.

If you wish to change to one of the IBM emulations, see “Using your Printer”.

PRINTER DRIVERS

The Oki driver for your printer is provided on the CD included with the printer. You can either load the Oki driver or select one of the compatible drivers listed below in your software application.

1. Insert the CD into your CD-ROM drive.

NOTE

If the CD does not AutoPlay, click Start → Run → Browse, then browse to your CD-ROM drive, double-click Install.exe and click OK.

2. Select your **Language**.
3. When the Menu Installer window appears, click the **Driver Installation** button.
4. Follow the on-screen instructions.

INSTALLING THE DRIVER

NOTE

Installation of the Oki USB driver is only required for Windows 98. You may be called upon for your original Windows 98 CD. Please have this available.

1. When the [Add Printer] window appears, click [Next].
2. Select the directory on the CD where the drivers are located. on the Oki CD they are situated in:
X:\Drivers\WinVer\CodePage where *X*: is CD drive letter;

WinVer is the Windows versions, and *CodePage* is the selected option.

NOTE

To find out more about Code pages, see Help on the Oki CD Browser.

3. After files have finished copying, click [Finish].
4. Switch your printer ON.

USING A COMPATIBLE DRIVER

The drivers below are listed by decreasing compatibility with your printer. *Use one as close to the top of the list as possible.*

Epson LQ

- ... Epson LQ680
- ... Epson LQ1170/570
- ... Epson LQ 1050

IBM Proprinter

- ... IBM Proprinter X24 — *factory setting*
- ... IBM Proprinter XL24e
- ... IBM Proprinter III

INTERFACES - GENERAL

Your printer is equipped with a selection of data interfaces:

Under no circumstances attempt to use both parallel and USB ports simultaneously.

1. **Parallel** – For direct connection to a PC. This port requires a bi-directional (IEEE 1289 compliant) parallel cable.
2. **USB** – For connection to a PC running Windows 98 or above (not Windows 95 ***upgraded*** to Windows 98) or Macintosh. Windows NT 4.0 *does not* support USB. Administrator privileges are necessary for Windows 2000 and Windows XP installations.

This port requires a cable conforming to USB version 1.1 or above. A genuine cable displays the Trident symbol on both connectors.



Using an inferior cable can cause printing problems and special cables are needed for longer runs than five metres.

The operation of a printer is not assured if a USB compatible device is connected concurrently with other USB compatible machines.

When connecting multiple printers of the same type, they appear as *****, ***** (2), ***** (3), etc. These numbers depend on the order of connecting or turning on each printer.

CONNECTING THE USB CABLE

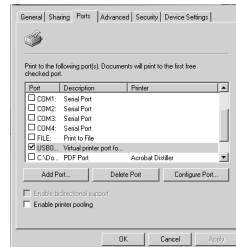
Due to the number of possible variants of operating systems it is not possible to describe every combination.

Terminology may vary between Windows operating systems and some knowledge is assumed. If you are unsure how to proceed, you should consult your computer documentation or system manager for details. This example uses Windows 2000 Professional.

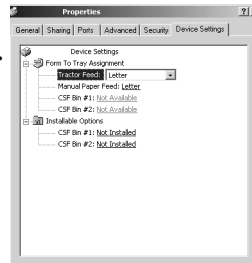
1. Ensure the printer and computer are easily accessible and turn both units off. This is not strictly necessary but may prevent any problems being caused by the accidental dislodging of power or other cables.
2. Plug the Series A Male connector (a) into the computer's USB port or into a suitable USB hub.
3. Plug the Series B male connector (b) into the printer's USB port.
4. Switch on both the computer and printer.



5. The printer will be identified immediately by the New Hardware Wizard and install itself in the Printer folder. An additional item, USB Printing Support will also appear in the Device Manager each time the printer is switched **ON** and connected.



6. Check that the default paper size has been correctly set by looking at the settings in the Settings > Printers folder. Under the printer's Properties > General tab, the current paper selection is shown. The printer picks up its initial setting from the Locale settings on the host computer. The paper size can be altered by using the drop down arrow and selecting an alternative size.

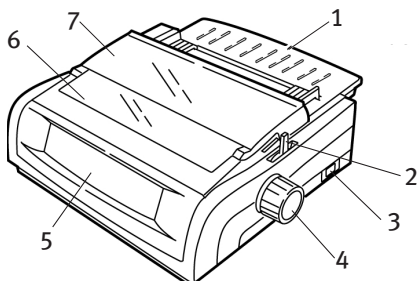


7. If the printer had formerly been used as a parallel or serial device and there is no output from the printer once a USB cable has been connected, check to see that the correct port has been selected. This information can also be found in the Properties folder but under the Ports tab. Amend as necessary.
8. If there are printing problems, check to see whether there is a USB connection active in the Control Panel. If there is no USB connection shown, you must install the hub.
9. Alternatively, there may be a problem if the printer is connected via a USB hub. Disconnect the printer cable from the hub and connect it directly to the computer.

USING YOUR PRINTER

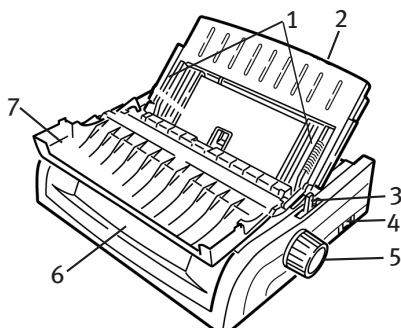
COMPONENTS: REAR FEED (CONTINUOUS FORMS)

The serial number of your printer is on a label fixed to the back of the printer.



- | | |
|------------------|-------------------|
| 1. Sheet Guide | 5. Control Panel |
| 2. Paper Lever | 6. Acoustic Cover |
| 3. ON-OFF Switch | 7. Access Cover |
| 4. Platen Knob | |

COMPONENTS: TOP FEED (SINGLE SHEETS)



- | | |
|------------------|-------------------|
| 1. Paper Guides | 5. Platen Knob |
| 2. Sheet Guide | 6. Control Panel |
| 3. Paper Lever | 7. Acoustic Cover |
| 4. ON-OFF Switch | |

NOTE

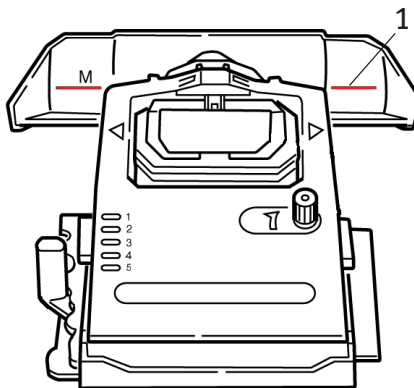
For single sheet printing, the paper lever must be in the middle position.

TOP OF FORM (TOF)

Top of Form (TOF) sets the print start position. The factory default is 1" from the top.

The TOF can be changed in increments of $1/180$ ", for either a single print job, or all print jobs. The overall amount of adjustment is limited to avoid paper jams.

The first line prints at the red line of the plastic paper shield (1) on the printhead.



CAUTION!

If you turn the platen knob when the printer is not at Top of Form, the TOF will misalign. Always feed the paper to TOF before turning the platen knob!

NOTE

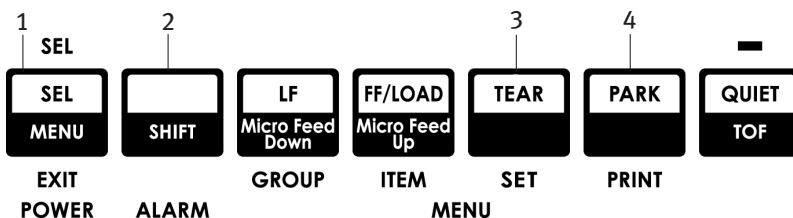
- › Your software may print the first line of print above or below where TOF is set. You may need to adjust the TOF to meet your software's requirements.
- › The Top of Form and Forms Tear-Off settings of your printer interact. How you set the Top of Form depends on whether **Forms Tear-Off** is ON (set to 500 ms, 1 sec, or 2 sec) or OFF (the factory default setting).

FORMS TEAR-OFF

There are two ways to determine the status of the Forms Tear-Off menu setting:

- ...❖ Print the Menu.
- ...❖ Use the TEAR key.

To print the Menu:



1. Make sure paper is loaded.
2. Hold **SHIFT** (2), then press **SEL** (1) to enter the Menu Mode.
3. Press **PARK** (4) to print the menu.
4. Look for the Form Tear-Off setting in the paper feed group you are using (Rear Feed, Bottom Feed or Top Feed—Forms Tear-Off appears in the Top Feed group only if the optional Roll Paper Stand is installed).

To use the TEAR key:

1. Make sure paper is loaded, and wait 2 seconds.
2. Press **TEAR** (3).
 - ...❖ If the paper moves up, Forms Tear-Off is OFF.
 - ...❖ If the paper moves down, Forms Tear-Off is ON.

SETTING TOP OF FORM (TOF)

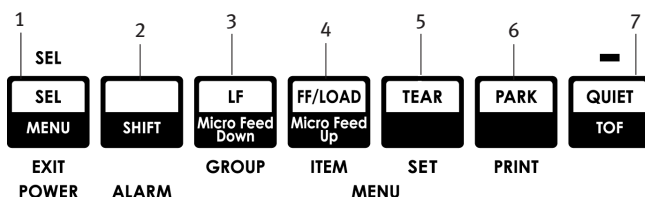
CAUTION!

If you turn the platen knob when the printer is not at Top of Form, the TOF will misalign. Always feed the paper to TOF before turning the platen knob!

The first line prints at the red line (1) of the plastic paper shield on the printhead.

Forms Tear-Off set to OFF - default

With paper loaded and the printer ON and selected:



1. Press **PARK** (6) to park the paper.
The SEL light goes off and the red alarm light comes on.
2. Press **FF | LOAD** (4) to load the paper.
3. If the printer is ON line, press **SEL | MENU** (1) to take the printer **OFF** line.
The SEL light goes out.
4. Press and hold **SHIFT** (2), then:
 - ❖ Press **LF | Micro Feed Down** (3) to set the TOF higher (the paper moves down).
 - ❖ Press **FF/LOAD | Micro Feed Up** (4) to set the TOF lower (the paper moves up).

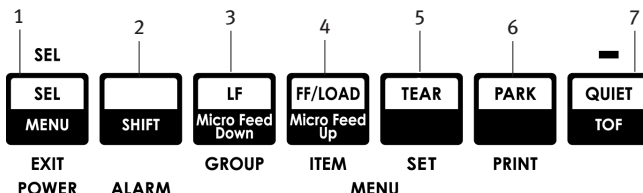
(When you begin pressing the Micro Feed key, the printhead will move to the right).

5. Press **SEL | MENU** (1) to place the printer back on line.

To reset the Top of Form to the factory default, see “Resetting Top of Form to the Factory Default” later in this chapter.

Forms Tear-Off set to ON

With paper loaded and the printer ON and selected:



1. Press **PARK** (6) to park the paper.
The SEL light goes off and the red alarm light comes on.
2. Press **FF | LOAD** (4) to load the paper.
3. Wait briefly until the paper moves up to the tear position, then press and hold **TEAR** (5).
The paper moves to the current TOF and the SEL light is illuminated.
4. If the printer is ON line, press **SEL | MENU** (1) to take the printer **OFF** line.
The SEL light goes out.
5. Press and Hold **SHIFT**, then:
 - ❖ Press **LF | Micro Feed Down** (3) to set the TOF higher (the paper moves down).
 - ❖ Press **FF/LOAD | Micro Feed Up** (4) to set the TOF lower (the paper moves up).

(When you begin pressing the Micro Feed key, the printhead will move to the right).

6. Press **SEL | MENU** (1) to save the setting and place the printer back on line.

To reset the Top of Form to the factory default, see the next page.

TEMPORARILY CHANGING THE TOP OF FORM

CAUTION!

If you turn the platen knob when the printer is not at Top of Form, the TOF will misalign. Always feed the paper to TOF before turning the platen knob.

To move the Top of Form position lower *for one page only*:

1. Press **SEL** to deselect the printer.
2. Press **LF** to lower the position of the Top of Form.

RESETTING TOP OF FORM TO THE FACTORY DEFAULT

The factory default setting for the Top of Form (where the printing should begin) is 1" down from the top of the page.

To reset the Top of Form to the factory default:

1. Remove paper from the paper path.
2. Turn the printer off.
3. Press and hold **PARK + QUIET | TOF** while turning on the printer.
4. Reload paper.

FORMS TEAR-OFF FEATURE

This feature is normally turned off. To use Forms Tear-Off, you must enter the menu and change the setting to the desired time interval (see “Changing the Forms Tear-Off Settings”).

The Forms Tear-Off feature allows a printed continuous forms page to be torn off without wasting paper or adjusting the printer. It can be used for rear feed continuous forms, bottom feed continuous forms (with the optional push tractor installed), or for top feed roll paper (with optional roll paper stand installed).

When the printer is turned on, the paper feeds to the tear-off position.

When data is received, the paper automatically moves down to the print position (TOF) and printing begins.

NOTE

You can also move the paper down to the print position manually by pressing **TEAR**.

When printing stops, Forms Tear-Off automatically moves the paper to align the perforation with the tear bar (located under the access cover), after the time interval which you selected through the menu.

Paper remains in the tear-off position until the printer receives more data. Then, the paper moves back down for printing.

NOTE

- › The status of the Forms Tear-Off menu setting affects how you set the Top of Form: see “Top of Form (TOF) and Forms Tear-Off” earlier in this chapter.
- › Do not use Forms Tear-Off with labels or multipart forms!
- › Forms Tear-Off cannot be used when the optional pull tractor is engaged.

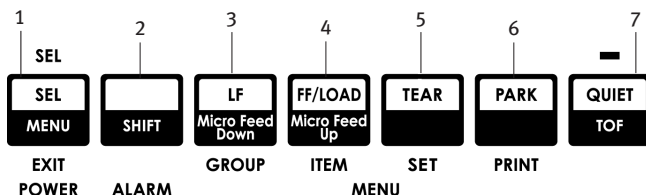
POTENTIAL ISSUES WITH SOFTWARE PACKAGES

If Forms Tear-Off is set to **ON** and the software package you are using “pauses” for a long enough interval while sending data to the printer, Forms Tear-Off may be activated. No data is lost, but this causes uneven print registration due to the paper movement.

If this occurs, use the menu to turn off this feature, then use the **TEAR** key to move the paper up to the tear position manually (see “Changing the Forms Tear-off Settings”).

CHANGING THE FORMS TEAR-OFF SETTING

The default setting for Forms Tear-Off is **OFF**.



To change the Forms Tear-Off setting:

1. Press **SHIFT** (2) + **SEL** (1).
2. Press **GROUP** (3) repeatedly until the Rear Feed or Bottom Feed group shows in the first column of the printed line, depending on which paper feed you are using,
3. Press **ITEM** (4) repeatedly until Form Tear-Off appears in the second column:

Rear Feed	Form Tear-Off	Off
-----------	---------------	-----
4. Press **SET** (5) until the time interval you wish to select appears in the third column:

Rear Feed	Form Tear-Off	1 Sec
-----------	---------------	-------
5. Press **SHIFT** (2) + **SEL** (1) to exit Menu Mode and save the setting.

MANUAL FORMS TEAR-OFF

If you don't wish to engage the Forms Tear-Off feature, you can advance:

- ❖ rear-feed continuous forms loaded on the built-in tractor
or
- ❖ bottom-feed continuous forms loaded on the optional push tractor

up to the tear-off position manually, by pressing **TEAR** (5).

PAPER PARK

CAUTION!

Never park labels.

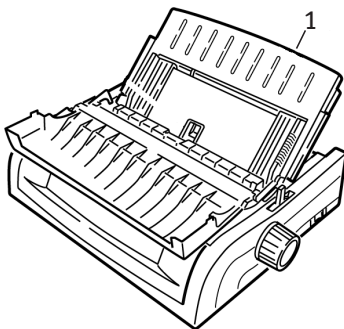
Paper park allows you to switch to single sheet printing without removing continuous feed paper from the printer.

When you wish to print single sheets, simply press **PARK** (6) to retract the continuous form paper from the paper path, then lift the sheet guide, load the sheet and send the print job.

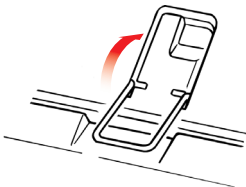
CHANGING PAPER PATHS

CONTINUOUS FORMS TO SINGLE SHEETS

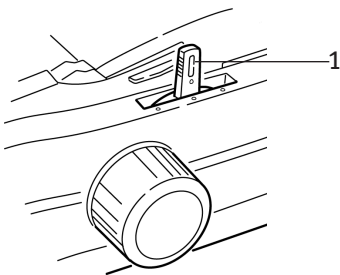
1. Tear off any printed pages, then press **PARK**.
2. Raise the sheet guide (1) to the single sheet feed position.



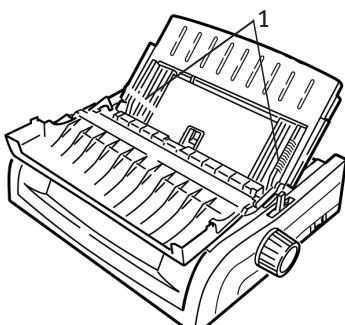
3. Pivot the wire feed guide into the sheet guide.



4. Move the paper lever (1) to the middle position marked "TOP."

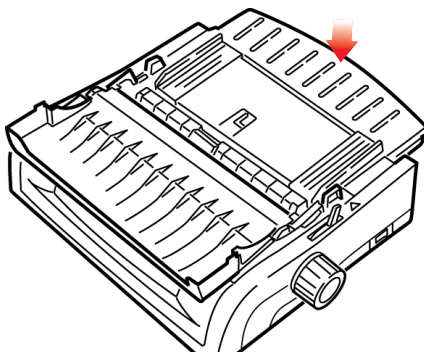


5. Adjust the paper guides (1) for the size of paper you are using, then place a sheet of paper in the sheet guide.



SINGLE SHEETS TO CONTINUOUS FORMS

1. Press **FF/LOAD** to remove the single sheet paper.
2. Lower the sheet guide into the continuous forms position.

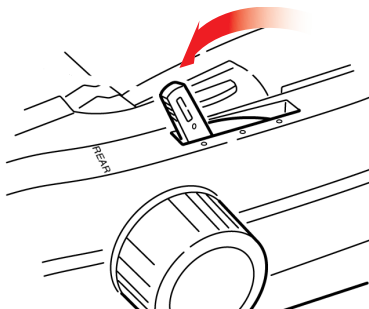


3. Swing the wire feed guide over onto the pull-up roller.

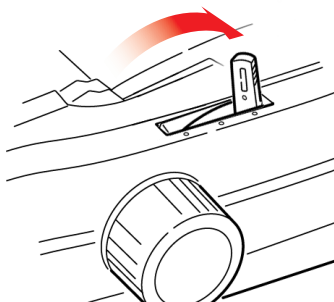


4. Move the paper lever to the appropriate position.

❖ Rear feed:



❖ Bottom feed:



❖ If necessary, load continuous form paper.

5. Press **FF/LOAD**.

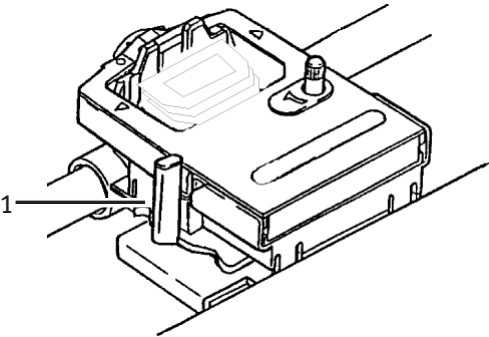
PRINthead GAP

- 1. The printhead gap is the distance between the printhead and the platen.

CAUTION!

Make sure the printer is turned OFF before you open the access cover.

To adjust the gap, open the access cover and move the coloured lever (1) to the recommended setting from the table.

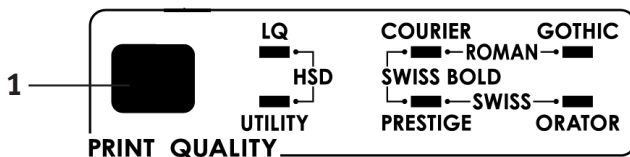


SETTING	MEDIA
1	Standard paper
2	2-part form (with carbon)
3	3-part form (with carbon)
4	4-part form (with carbon)
5	Envelopes or extra thick paper

NOTE

When the head gap is set to 2, 3, 4 or 5, the printer automatically slows down for better print quality with multipart forms.

PRINT QUALITY



Press **PRINT QUALITY** (1) to select:

Letter Quality (LQ light on):

- ... Highest quality, slowest speed
- Choice of 7 typefaces

Utility (UTILITY light on):

- ... Medium quality, medium speed
- Gothic typeface only

High Speed Draft (HSD):

- ... Lower quality, higher speed
- Gothic typeface only

NOTE

Front panel settings for print quality and character pitch are normally overridden by software commands.

To select the typeface you want, press **PRINT QUALITY** (1) until the appropriate front panel lights are on.

TYPE FACE	LIGHTS ON
Courier	LQ and COURIER
Gothic	LQ and GOTHIC
Orator	LQ and ORATOR
Prestige	LQ and PRESTIGE
Roman	LQ, COURIER and GOTHIC
Swiss	LQ, PRESTIGE and GOTHIC
Swiss Bold	LQ, COURIER and PRESTIGE

CHARACTER PITCH



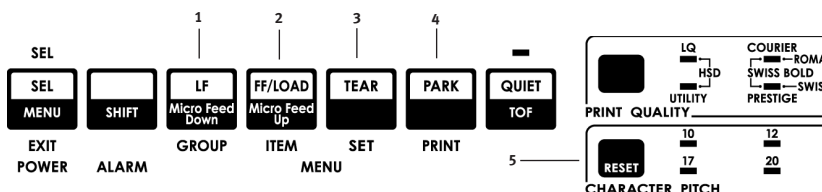
Character pitch determines how many characters will print on each line. You can choose a specific fixed width (10 to 20) for each character in characters per inch (CPI). The higher cpi settings are often used for spreadsheets.

Proportional (**PROP**) sets character widths based on the character itself: e.g., the letter i is assigned a narrower width than the letter m. This provides a more polished, typeset appearance.

To select Proportional, press the **CHARACTER PITCH** key until *both* the cpi value *and* **PROP** lights are illuminated.

To select non-proportional, press the **CHARACTER PITCH** key until the light for the cpi value you wish to use is illuminated.

PRINTER RESET



Clearing some error conditions requires that you reset (reinitialise) the printer. To do this:

1. Press and release **SEL** (1) to take the printer off line.
The **SEL** light goes out.
2. Press and hold **SHIFT** (2), then press the **RESET/CHARACTER PITCH** key (5).

NOTE

Pressing **SHIFT** and **RESET** reinitialises the printer, but does *not* affect any menu settings and does *not* reset the printer to the factory defaults. For information on resetting the printer to the factory defaults, see “Resetting the Menu to the Factory Defaults” later in this chapter.

EMULATIONS

- Epson® LQ — factory setting
- IBM® Proprinter
- IBM® AGM

Changing Emulations

Make sure paper is loaded.

1. Press and hold **SHIFT** (2), then press **SEL** (1).
2. Press **LF** (3).
The following line will print:

Printer Control Emulation Mode EPSON LQ

3. Press **TEAR** (4) repeatedly until the emulation you wish to select prints in the right-hand column.

4. Press and hold **SHIFT** (2), then press **SEL** (1) to save your setting and exit the Menu Mode.

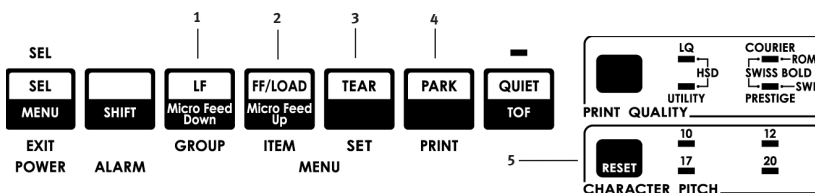
MENU MODE

In Menu Mode, use the front panel keys to change the defaults for the printer parameters. The changes made in the Menu Mode are automatically saved when you exit the Menu Mode and are retained, even when the printer is turned off.

NOTE

Please print the current Menu Mode settings *before* you reset or change them. This is the only way to have a record of the settings.

MENU MODE KEYS



GROUP Key

Prints the next Group in the Menu.

With the **SHIFT** key, prints the previous Group.

ITEM Key

Prints the next Item in the Group.

With the **SHIFT** key, prints the previous Item in the Group.

SET Key

Prints the next setting for an Item.

With the **SHIFT** key, prints the previous setting for an Item.

PRINT Key

Prints a copy of all the Menu settings.

With the **SHIFT** key, prints the current settings for the Group selected.

MENU Light

Illuminated when the printer is in Menu Mode.

ENTERING AND EXITING MENU MODE

Hold down the **SHIFT** key while pressing SEL.

RESETTING THE MENU TO THE FACTORY DEFAULTS

1. Turn the printer OFF.
2. Press **SEL** and **LF** while turning the printer ON.

PRINTING THE MENU SETTINGS

1. Make sure paper is loaded in the printer.
2. Press and hold **SHIFT**, then press **SEL** to enter the Menu Mode.
3. Press **PRINT** (PARK key).

PRINTING ALL MENU SETTINGS

To print out a listing of the settings for all menu items, regardless of the emulation selected or the accessories installed:

Make sure paper is loaded in the printer.

1. Press and hold **SHIFT**, then press **SEL** to enter the Menu Mode.
2. Press and hold **SHIFT**, then press **PRINT QUALITY**.

CHANGING THE MENU SETTINGS

1. Press and hold **SHIFT**, then press **SEL** to enter the Menu Mode.
2. Use the **GROUP**, **ITEM** and **SET** keys to make your changes:
3. Press **GROUP** until the Group you wish to change appears in the first column.
4. Press **ITEM** until the Item you wish to change appears in the second column.
5. Press **SET** until the setting you want appears in the third column.

6. Press and hold **SHIFT**, then press **SEL** to exit the Menu Mode and save your settings.

NOTE

If you turn off the printer without first exiting the Menu Mode, the changes you have made will be lost.

MENU SETTINGS

For a complete explanation of each menu item, see “Explanations of Menu Items” later in this chapter.

The table following shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

GROUP	ITEM	SETTINGS
Printer Control	Emulation Mode	<i>EPSON LQ</i> , IBM PPR, IBM AGM
Font	Print Mode	<i>LQ Courier</i> , LQ Roman, LQ Swiss, LQ Swiss Bold, LQ Orator, LQ Gothic, LQ Prestige, Utility, HSD
	Pitch	<i>10 cpi</i> , 12 cpi, 15 cpi, 17.1 cpi, 20 cpi
	Proportional Spacing	<i>NO</i> , YES
	Style	<i>Normal</i> , Italics
	Size	<i>Single</i> , Double

GROUP	ITEM	SETTINGS
Symbol Sets	Character Set	Set I, Set II
	Language Set	ASCII , French, German, British, Danish I, Swedish I, Italian, Spanish I, Japanese, Norwegian, Danish II, Spanish II, Latin American, French Canadian, Dutch, Swedish II, Swedish III, Swedish IV, Turkish, Swiss 1, Swiss II, Publisher Slashed, Unslashed
	Zero Character Code Page	USA , Canada French, Multilingual, Portugal, Norway, Turkey, Greek_437, Greek_869, Greek_928, Greek_437 CYPRUS, Polska Mazovia, Serbo Croatic I, Serbo Croatic II, ECMA-94, Hungarian CWI, Windows Greek, Windows East Europe, Windows Cyrillic, East Europe Latin II - 852, Cyrillic I - 855, Cyrillic II - 866, Kamenicky (MJK), ISO Latin 2, Turkey_857, Latin 5 (Windows Turkey), Ukrainian, Bulgarian, ISO Latin 6 (8859/10), Windows Baltic, Baltic_774, KBL-Lithuanian, Cyrillic Latvian, Roman-8, Icelandic-861, Multilingual 858, ISO 8859-15, Greek_737, Asmo 449+, Asmo 708, Arabic 864, Windows Arabic
Rear Feed	Line Spacing	6 LPI , 8 LPI
	Form Tear-Off	Off , 500 ms, 1 sec., 2 sec.
	Skip Over Perforation	No , Yes
	Page Width (wide model)	13.6" , 8"
	Page Length	11", 11-2/3", 12" , 14", 17", 5", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"
Bottom Feed	Line Spacing	6 LPI , 8 LPI
	Form Tear-Off	Off , 500 ms, 1 sec., 2 sec.
	Skip Over Perforation	No , Yes
	Page Width (wide model)	8", 13.6"
	Page Length	11", 11-2/3", 12" , 14", 17", 5", 3", 3.25", 3.5", 4", 5.5", 6", 7", 8", 8.5"

GROUP	ITEM	SETTINGS
Top Feed	Line Spacing	6 LPI , 8 LPI
	Form Tear-Off*	Off , 500 ms, 1 sec., 2 sec.
	Bottom Margin	Valid , Invalid
	Page Width (wide model)	8", 13.6"
	Page Length	11", 11-2/3" , 12", 14", 17", 5", 3", 3.25", 3.5", 4", 5.5", 6", 7", 8", 8.5"
	Wait Time	OFF , 500 ms, 1 sec., 2 sec.
	Page Length Control	by Actual Page Length, by MENU Setting
	<i>* With RollPaper Stand fitted</i>	
Set-Up	Graphics	Bi-directional, Uni-directional
	Receive Buffer Size	1 Line, 32K, 64K , 128K
	Paper Out Override	No , Yes
	Print Registration 1	0 , range to 0.25 mm to the right or left, set in 0.05 mm increments Press SEL to shift registration to the left; press SHIFT + SEL to shift registration to the right.
	Print Registration 2	0 , range to 0.25 mm to the right or left, set in 0.05 mm increments press SEL to shift registration to the left; press SHIFT + SEL to shift registration to the right.
	Operator Panel Function	Full Operation , Limited Operation
	Reset Inhibit	No , Yes
	Print Suppress Effective	No, Yes
	Auto LF	No , Yes
	Auto CR*	No , Yes
	CSF Bin Select**	Bin 1 , Bin 2
	SI Select Pitch (10 cpi)*	15 cpi, 17.1 cpi
	SI Select Pitch (12 cpi)*	12 cpi , 20 cpi
	Time Out Print	Valid , Invalid
	Auto Select	No , Yes
	Centring Position	DEFAULT , MODE 1, MODE 2
	CSF Type**	Wide , Narrow
	Power Saving	Enable , Disable
	Power Save Time	5 min. , 10 min., 15 min., 30 min., 60 min.

* When IBM emulation is selected.

** When Cut Sheet Feeder is fitted

GROUP	ITEM	SETTINGS
Parallel I/F	I-Prime	Buffer Print , Buffer Clear, Invalid
	Pin 18	+5V , Open
	Auto Feed XT*	Invalid , Valid
	Bi-Direction	Enable , Disable
	<i>*When Epson LQ emulation selected.</i>	
Serial I/F*	Parity	None , Odd, Even
	Serial Data 7/8 bits	8 Bits , 7 Bits
	Protocol	Ready/Busy , X/ON / X/OFF
	Diagnostic Test	No , Yes
	Busy Line	SSD- , SSD+, DTR, RTS
	Baud Rate	19200 bps, 9600 bps , 4800 bps, 2400, 1200, 600, 300 bps
	DSR Signal	Valid , Invalid
	DTR Signal	Ready On Power Up , Ready On Select
	Busy Time	200 ms , 1 sec.
	<i>* When Serial I/F installed.</i>	
CSF Bin 1**	Line Spacing	6 LPI , 8 LPI
	Bottom Margin	Valid , Invalid
	Page Width (Wide model)	8" , 13.6"
	Page Length	11" , 11-2/3", 12", 14", 17", 5", 3.5", 4", 5.5", 6", 7", 8", 8.5"
CSF Bin 2**	Line Spacing	6 LPI , 8 LPI
	Bottom MarginV	Valid , Invalid
	Page Length	11" , 11-2/3", 12", 14", 17", 5", 3.5", 4", 5.5", 6", 7", 8", 8.5"
	<i>* * When Cut Sheet Feeder installed.</i>	

EXPLANATION OF MENU ITEMS

These explanations are in alphabetical sequence to make it easier to look them up. Some items only appear when optional accessories are installed; others appear in several groups in the menu.

Auto CR, Default =No

IBM emulation only. If you want the printer to automatically add a carriage return when a Line Feed is received at the end of a line, change the setting to Yes.

Auto LF, Default = No

If your printout is consistently double spaced, select No; if it overprints, select Yes.

Auto Feed XT, Default = Invalid

Epson emulation only. In the Epson emulation, the XT signal on pin 14 of the parallel interface can control automatic line feed. Some interface cables are wired in such a way that automatic line feed is always in effect: this item eliminates this potential problem. If your system uses pin 14 of the parallel interface to control automatic line feed, change the setting to Valid.

Auto Select, Default = No

Determines whether or not your printer will automatically be selected after you load in paper. With the factory default engaged, the printer will be deselected so that you can set the Top of Form. If you always use the same Top of Form position, change the setting to Yes.

Baud Rate, Default = 9600 bps

Appears only if optional Serial Interface is installed. Set this to match your system's transmission speed.

Bi-direction, Default = Enable

Change this setting if you wish to disable bi-directional transmission (PnP) in Nibble mode.

Bottom Margin, Default = Valid

Change to Invalid if you want the printer to ignore the bottom margin setting.

CAUTION!

Setting the Bottom Margin to Invalid can cause loss of data and damage the printhead by allowing printing without paper.

Busy Line, Default = SSD-

Appears only when the optional Serial Interface is installed. If Ready/Busy protocol (factory default) is selected, you can choose which line your system monitors for a busy signal:

- ...✧ SSD -9V, select SSD-
- ...✧ SSD +9V, select SSD+
- ...✧ DTR -9V, select DTR
- ...✧ RTS -9V, select RTS

Busy Time, Default = 200 ms

Appears only when the optional Serial Interface is installed. Sets the length of the busy signal when the Ready/Busy protocol (factory default) is engaged.

Busy Time Default = 200ms

Appears only when the optional Serial Interface is installed. Sets the length of the Busy signal when the Ready/Busy protocol (factory default) is enabled.

Centering Position, Default = DEFAULT

Used to limit printhead travel when printing narrow columns.

- ...✧ Select Mode 1 for the narrow carriage printer.
- ...✧ Select Mode 1 or Mode 2 for the wide carriage printer.

Character Set, Default = IBM Set II

Use this to switch character sets to IBM Set I.

Code Page, Default = USA

Choose the Code Page character set you wish to use:

USA, Canada French, Multilingual 850, Portugal 860, Norway 865, Turkey, Greek_437, Greek_869, Greek_928, Greek_437 CYPRUS, Polska Mazovia, Serbo Croatic I, Serbo Croatic II, ECMA-94, Hungarian CWI, Windows Greek, Windows East Europe, Windows Cyrillic, East Europe Latin II - 852, Cyrillic I - 855, Cyrillic II - 866, Kamenicky (MJK), ISO Latin 2, Turkey_857, Latin 5 (Windows Turkey), Ukrainian, Bulgarian, ISO Latin 6 (8859/10), Windows Baltic, Baltic_774, KBL-Lithuanian, Cyrillic Latvian, Roman-8, Icelandic-861, Multilingual 858, ISO 8859-15, Greek_737, Asmo 449+, Asmo 708, Arabic 864, Windows Arabic.

CSF Bin Select, Default = Bin 1

Appears only when the optional Dual-Bin Cut Sheet Feeder is installed. Use this to switch to Bin 2 as the default.

CSF Type, Default = Wide

To avoid paper jams, change this setting to Narrow if you are using the optional Cut Sheet Feeder on the wide model ML421 printer.

Diagnostic Test, Default = No

Appears only when the optional Serial Interface is installed. Select YES to perform a diagnostic test of the serial interface.

DSR Signal, Default = Valid

Appears only when the optional Serial Interface is installed. Used with the Ready/Busy protocol (factory default) to select the way your system handles the DSR signal.

DTR Signal, Default = Ready On Power Up

Appears only when the optional Serial Interface is installed. Change to Ready On Select if the DTR signal is required when the printer is selected (leave as Ready On Power Up if the DTR signal is required when the printer is turned ON).

Emulation Mode, Default = Epson LQ

Selects the printer command set (emulation) you want to enable.

Form Tear-Off, Default = Off

Choose 500 ms, 1 sec., or 2 sec. to turn the Form Tear-Off feature ON and to set the time interval for the printer to wait before advancing the paper.

Graphics, Default = Uni-directional

Change to uni-directional graphics for better registration, but slower printing. With this set for bi-directional, you can optimise the registration using the Print Registration setting in the Menu.

Graphics Speed, Default = Low

Change to HIGH for faster printing when the optimum print quality is not an issue.

I-Prime, Default = Buffer Print

Determines what the printer will do when it receives the I-Prime signal from the software.

- ...❖ **Buffer Print:** prints out the buffer contents before resetting.
- ...❖ **Buffer Clear:** dumps the buffer contents immediately.
- ...❖ **Invalid:** causes the printer to ignore the I-Prime command. Select this setting if you wish to enter settings through the printer's control panel which will not be automatically overridden by the software's settings when the I-Prime signal is sent.

Language Set, Default = ASCII

Replaces certain standard symbols with special characters used in foreign languages.

Line Spacing, Default = 6 lpi

Change to 8 lines per inch (lpi) to get more lines on a page.

Operator Panel Function, Default = Full Operation

Change to Limited Operation to deactivate the **PRINT QUALITY** and **CHARACTER PITCH** buttons, so that these features can only be controlled through your software. This prevents these from being changed from the control panel when several people are using the printer.

NOTE

This feature also prevents access to the Menu. To access the Menu in these circumstances, turn the printer OFF, then hold down the **SEL** key while turning ON the printer.

Page Length, Default = 12"

Selects the length of the paper you are using. This enables the printer to keep track of the initial printing position (TOF) on each page.

Page Length Control, Default = by Menu Setting

If you wish to use the Paper End sensor to detect the actual paper end, use **Actual Page Length** setting. If you use “by Menu Setting”, the printer will disregard the Paper End (PE) and use the page length as set by the menu.

Page Width, Default = 13.6"

Wide carriage model only. Change to 8" to print on narrow paper.

Paper Out Override, Default = No

Senses when less than 1" (25 mm) of paper remains and stops printing. Change to Yes to override the sensor and print closer to the bottom of the page.

CAUTION!

Engaging Paper Out Override can cause loss of data and damage the printhead by allowing printing without paper.

Parity, Default = None

Appears only when the optional Serial Interface is installed. Selects the type of parity your system uses: None, Odd or Even.

Pin 18, Default = +5V

Sets the signal on pin 18 to +5 volts or open.

Pitch, Default = 10 cpi

Choose the character width in characters per inch (cpi).

Power Save Time, Default = 5 min.

Sets the interval the printer waits for more data before it goes into the power save mode. Power Saving must be set to Enable (the factory default) for this to be effective.

Power Saving, Default = Enable

Change to Disable if you wish to prevent the printer from entering the Power Save mode after the selected interval.

Print Mode, Default = LQ Courier

Choose the quality and typeface of printing.

Print Registration, Default = 0

Change the setting as required to obtain the best registration for bi-directional printing.

Print Suppress Effective, Default = Yes

If your system uses the DC1 and DC3 codes for something other than the print suppress mode, change the setting to No.

Proportional Spacing, Default = No

Change the setting to Yes to engage proportional spacing of characters.

Protocol, Default = Ready/Busy

Appears only if the optional Serial Interface is installed. Change to X-ON / X-OFF if that is the type of protocol your system uses.

Receive Buffer Size, Default = 64K

Selects the amount of memory devoted to holding received data. Choosing 1 Line will tie up your computer while printing, but if you abort the print job, the printer will stop much sooner.

Reset Inhibit, Default = No

Select Yes if you wish the printer to ignore the reset command sent by software. This prevents your software from changing the settings you make through the front panel controls or through printer commands.

NOTE

This will also prevent your software from clearing out existing settings when you finish printing one document and switch to another.

Serial Data 7/8 Bits, Default = 8 Bits

Appears only if the optional Serial Interface is installed. Change to 7 Bits if your system uses a 7-bit data format.

SI Select Pitch 10 cpi, Default = 17.1 cpi

IBM emulation only. Sets the pitch to be engaged when the printer control panel is set for 10 cpi and the SI command is received.

SI Select Pitch 12 cpi, Default = 20 cpi

IBM emulation only. Sets the pitch to be engaged when the printer control panel is set for 12 cpi and the SI command is received.

Size, Default = Single

Change to Double for double width and height printing.

Skip Over Perforation, Default = No

Change to Yes if you want the printer to go to the next page when it comes within 1" (25 mm) of the bottom of the page. Keep it set to No if your software has its own page formatting controls.

Style, Default = Normal

Change to Italics if you want the printed characters to be slanted.

Time Out Print, Default = Valid

If your software spends a long time processing between portions of data it feeds to the printer, change the setting to Invalid to keep your printer from dumping the received data while it is waiting for more.

Wait Time, Default = 1 sec.

Sets the amount of time the printer will wait for more data before moving to the form tear-off position.

Zero Character, Default = Unslashed

If you want the printer to use a slash to distinguish the number zero from the capital letter O, change the setting to Slashed.

MAINTENANCE

REPLACING THE RIBBON CARTRIDGE

Important!

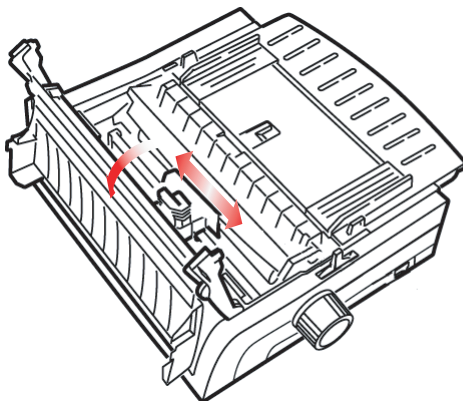
Make sure you have the correct replacement ribbon for your printer. The wrong ribbon will not print when installed in your printer. Look for the printer model number on the ribbon package.

RIBBON CARTRIDGE HANDLING

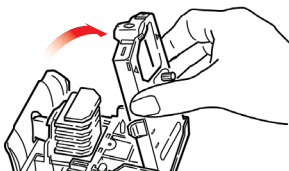
- ❖ Leave unused ribbon cartridges in their packages until needed.
- ❖ Careful; the ribbon ink may cause permanent stains.
- ❖ Ribbon ink on skin or clothing can usually be removed with soap and water.

Make sure the printer is turned OFF.

1. Open the access cover and center the printhead.



2. Swing the used ribbon cartridge up off the printhead, lift it out, and discard it.



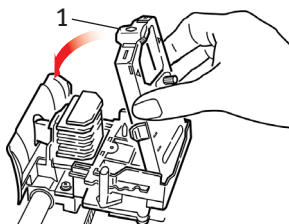
WARNING!

The printhead may be HOT.

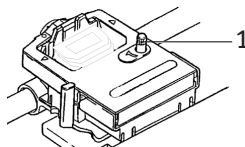
3. Unpack the new ribbon cartridge and install it.

Important!

Do not remove the ribbon shield (1) from the ribbon!



4. Turn the take-up knob (1) in the direction of the arrow to take up any ribbon slack.



5. Close the access cover and turn the printer back on.

If ribbon should contact the eyes:

Flush eyes with large quantities of water for 15 minutes, keeping eyelids open with fingers. Seek medical attention.

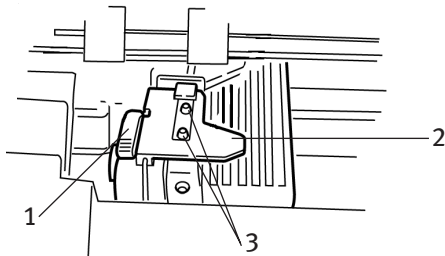
If ribbon should contact the skin

Wash thoroughly with soap and water.

LOADING PAPER

REAR FEED

If you have any paper in the paper path, remove it before installing rear feed paper.

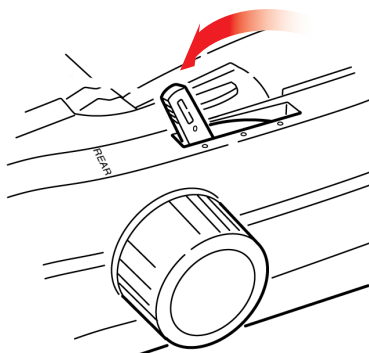


1. Lock Lever
2. Upper Tractor Cover
3. Pins

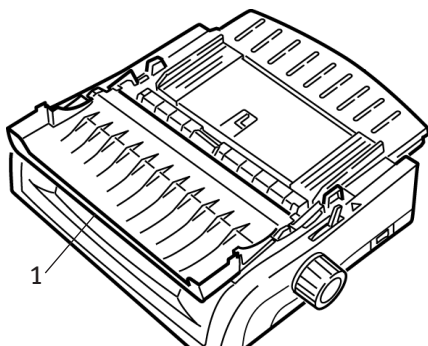
Loading Rear Feed Paper from the Back of the Printer

These instructions assume you have ready access to the back of the printer. If you do not, go to “Loading Rear Feed Paper from the Front of the Printer.”

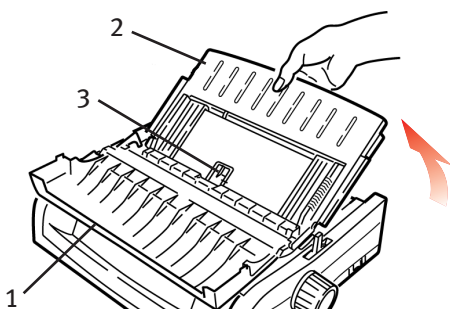
Make sure the paper lever is forward (position marked “REAR”).



1. Open the access cover (1).



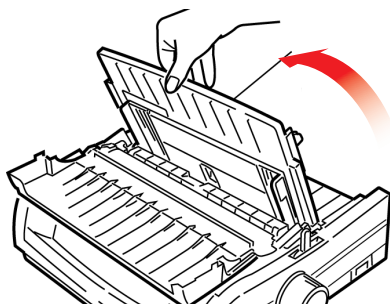
2. Grasp the sheet guide. Lift it slightly, then slide it back.



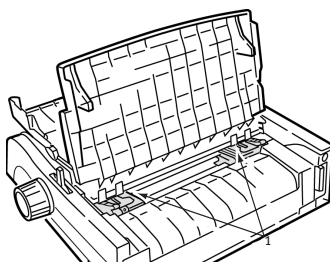
3. Pivot the sheet guide forward and gently rest it against the roller assembly.

Careful!

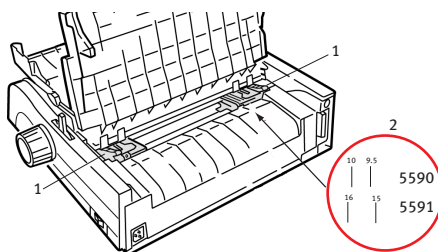
If you push the sheet guide too hard against the roller assembly, it may dislodge it. If it does, be sure to reseal the roller assembly before continuing.



4. From the back of the printer, locate the tractors (1).



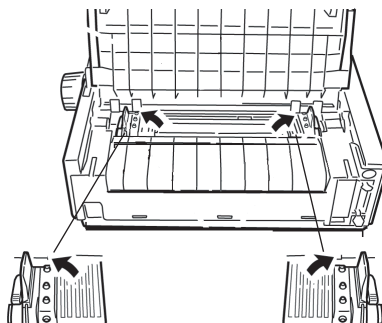
5. Open the lock levers (1) and move the right tractor (as viewed from the back of the printer) to the reference mark (2) matching the width of the paper you are loading. Then close the lock lever on the right tractor:



NOTE

The movement of the right tractor is limited to ensure that the paper covers the paper sensor.

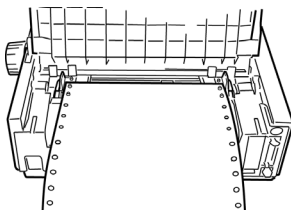
6. Open the tractor covers.



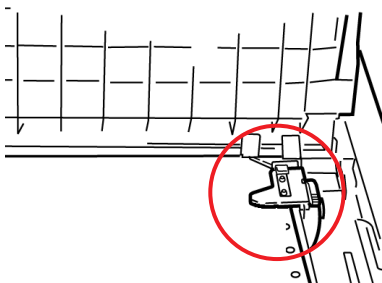
7. Place continuous forms paper on the first two pins of either tractor.

Important!

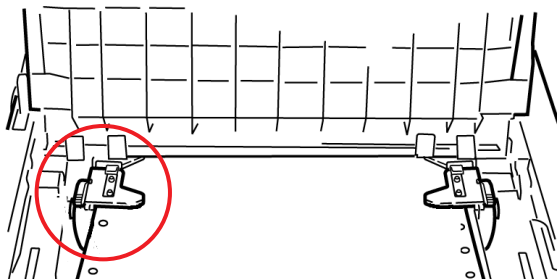
You must keep the number of paper holes engaged on either pin the same. If you don't the paper will skew and jam.



8. Close the right tractor cover.



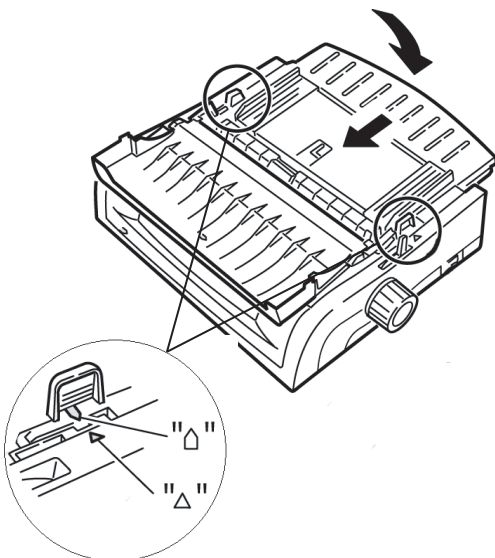
9. Adjust the left tractor until the holes in the paper are centered on the pins then lock the lever and close the left tractor cover.



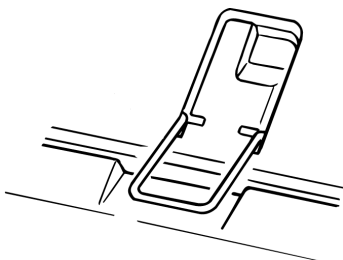
NOTE

If the paper is too loose, or too tight, it can cause jams.

10. Lower the sheet guide and slide it towards the front of the printer until the marks align.



11. Place the wire guide in the sheet guide on the pull-up roller assembly.



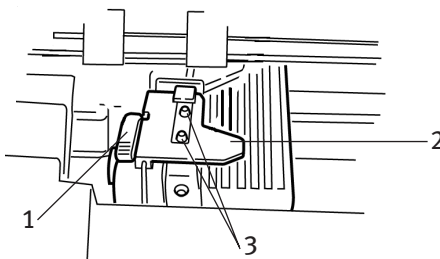
12. Press **FF/LOAD**.

NOTE

The factory default setting for the Top of Form (where the printing should begin) is 1" down from the top of the page. To change the setting, see "Top of Form (TOF)" in the previous chapter.

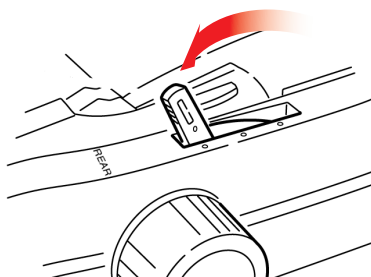
Loading Rear Feed Paper from the Front of the Printer

These instructions assume you do not have ready access to the back of the printer. If you do, go back to "Loading Rear Feed Paper from the Rear of the Printer" earlier in this chapter.

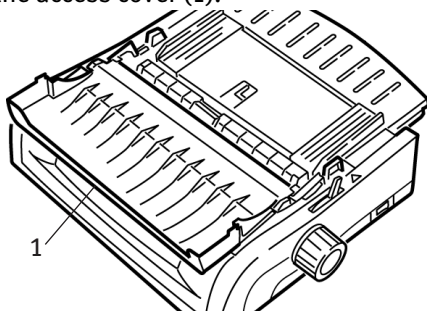


1. Lock Lever
2. Upper Tractor Cover
3. Pins

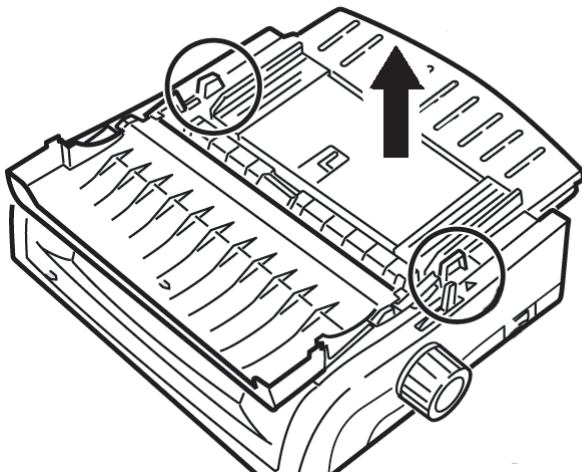
Make sure the paper lever is forward (position marked “REAR”).



1. Open the access cover (1).



2. Grasp the tabs and lift off the sheet guide.

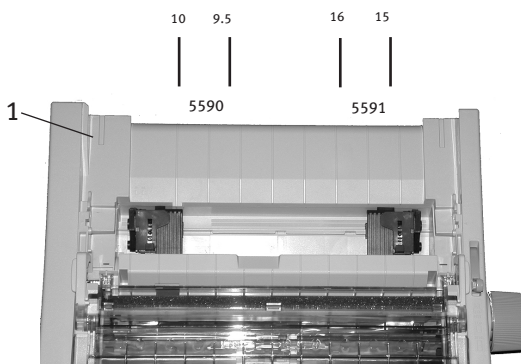


3. Pull up on the lock levers to release them.

NOTE

The movement of the left tractor (as viewed from the front of the printer) is restricted to ensure that the paper covers the paper out sensor.

4. Move the left tractor to the position to match your paper size and push back on the lever to lock it in place, then move the right tractor to fit the width of the paper. You will find reference marks (1 in illustration below) on the printer for the two most common paper sizes:



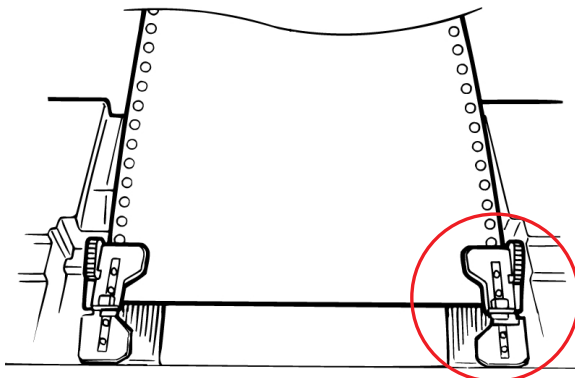
5. Open the tractor covers and place continuous forms paper on the first two pins of either tractor, then close the left tractor cover.



NOTE

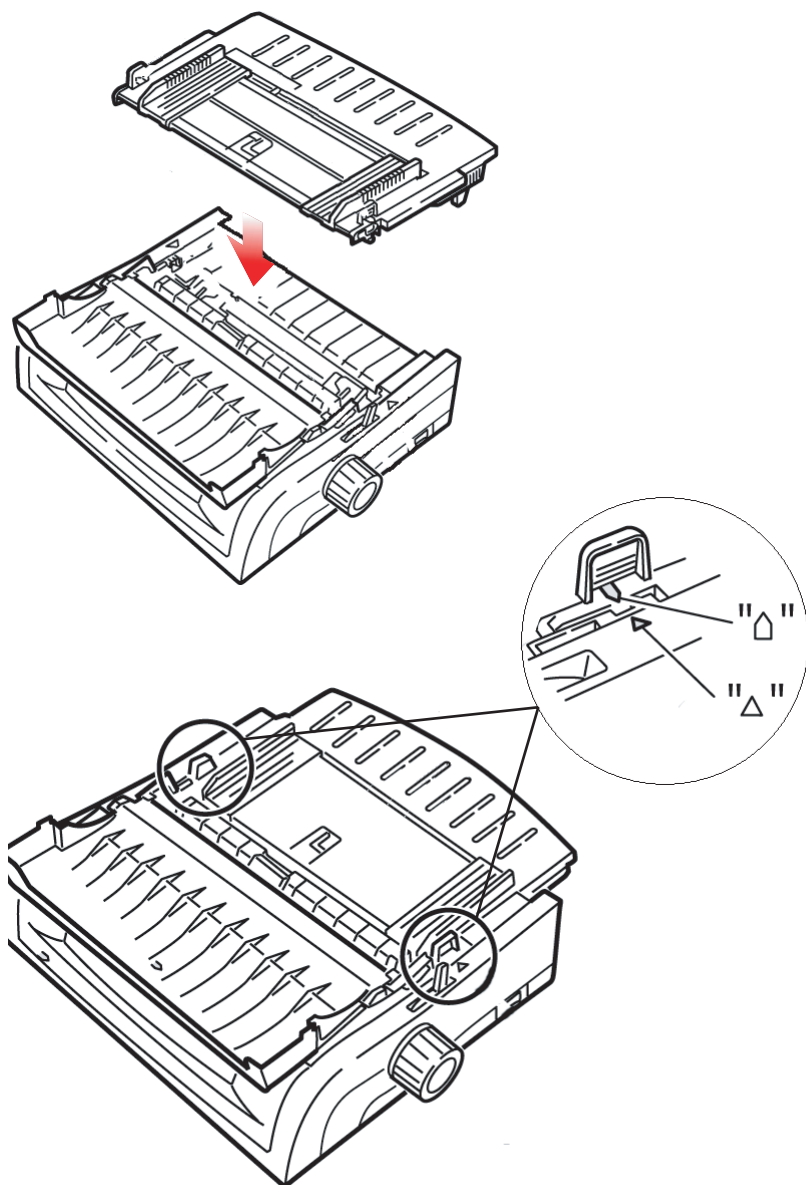
You must keep the number of paper holes engaged on either pin the same. If you don't the paper will skew and jam.

6. Adjust the position of the right tractor to center the holes in the paper on the pins. Then, close the right tractor cover and push back the lock lever. Do not stretch the paper.

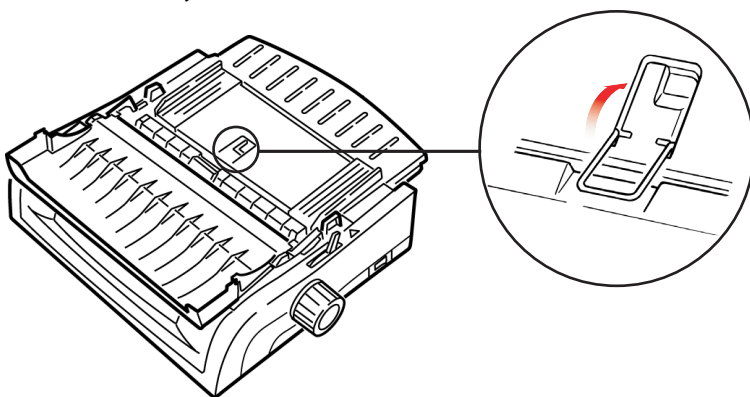


If the paper is too loose or too tight it can cause jams.

7. Reinstall the sheet feeder.



8. Place the wire guide (1) in the sheet guide on the pull-up roller assembly.



9. Press **FF/LOAD**.

NOTE

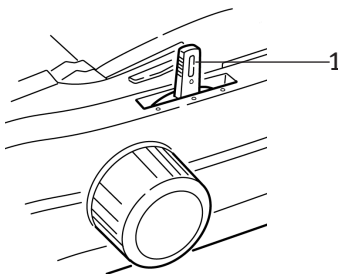
The factory default setting for the Top of Form (where the printing should begin) is 1" down from the top of the page. To change the setting, see "Top of Form (TOF)" in the previous chapter.

TOP FEED (SINGLE SHEETS)

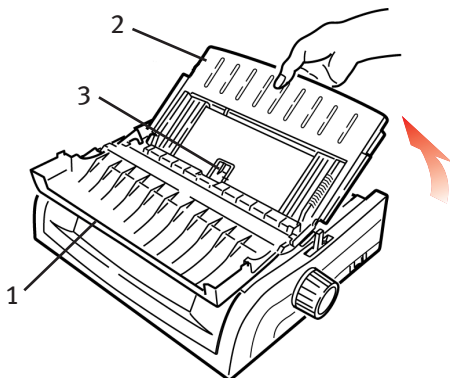
If you have continuous form paper in the path, press **PARK** to remove it before loading single sheets.

Make sure the printer is on and deselected (**SEL** light off).

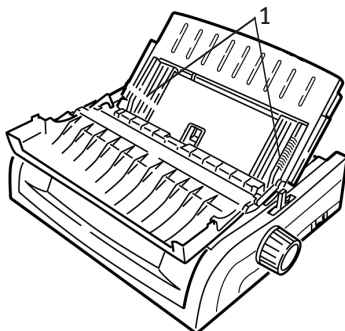
1. Move the paper lever (1) to the center position (marked "TOP").



2. Open the acoustic cover (1) and raise the sheet guide (2) to the single sheet position. Pivot the wire feed guide (3) up into the sheet guide.



3. Adjust the paper feed guides (1) for the width of the paper, then place a sheet of paper in the separator. The paper will feed into the printer.



NOTES

- › If the paper does not feed in, remove it. Check the paper lever position. Make sure the **ALARM** light is ON: if it is flashing, hold the **SHIFT** key and press the **CHARACTER PITCH/RESET** key. Reload the sheet of paper.
- › The factory default setting for the Top of Form (where the printing should begin) is 1" down from the top of the page. To change the setting, see "Top of Form (TOF)" in the previous chapter.

CLEARING PAPER JAMS

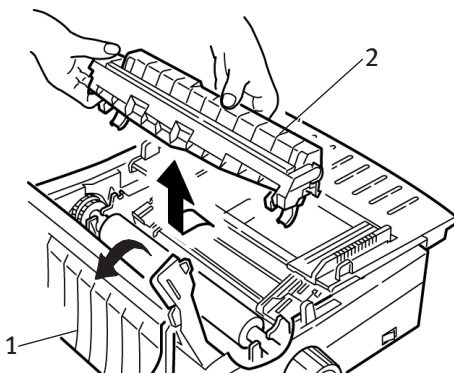
REAR FEED JAMS

1. Turn off the printer.
2. Use the platen knob to back the paper all the way out of the printer.

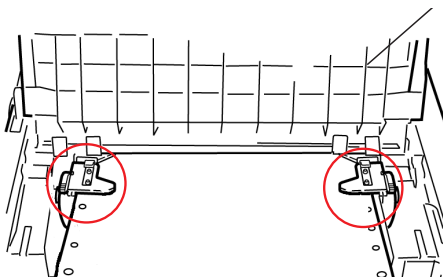
CAUTION!

Make sure the printer is turned OFF before you open the access cover.

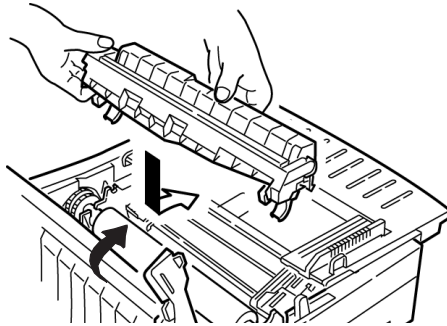
3. Open the access cover (1) and remove the pull-up roller assembly (2). Remove any torn paper.



4. Lift the sheet guide (1) and reload paper. Make sure you lock the tractor covers.



5. Lower the sheet guide, then install the pull-up roller assembly and close the access cover.



6. Turn ON the printer and press **FF/LOAD**.

REAR FEED, REPEATING PAPER JAMS

If the paper keeps jamming, you may have:

- ❖ defective paper
- ❖ misaligned paper
- ❖ bits of paper stuck in the paper path

Defective Paper

Replace the defective paper with a fresh stack.

Misaligned Paper

1. Turn off the printer.
2. Use the platen knob to back the paper all the way out of the printer.
3. Tear off a couple of sheets of paper, leaving a new, clean, square-cut edge.
4. Reload the paper and turn the printer back on.

Fragments of Paper in the Paper Path

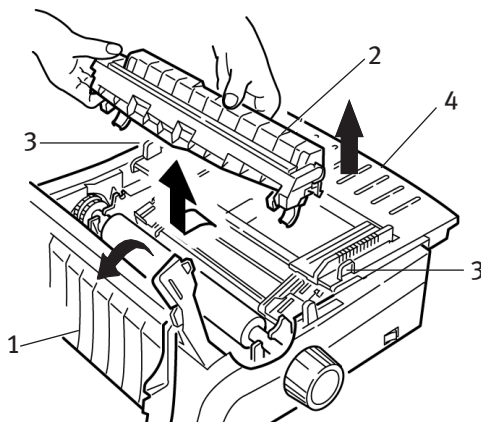
1. Turn off the printer.

2. Use the platen knob to back the paper all the way out of the printer.

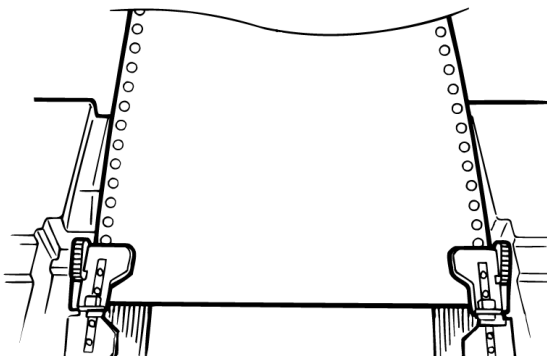
CAUTION!

Make sure the printer is turned OFF before you open the access cover.

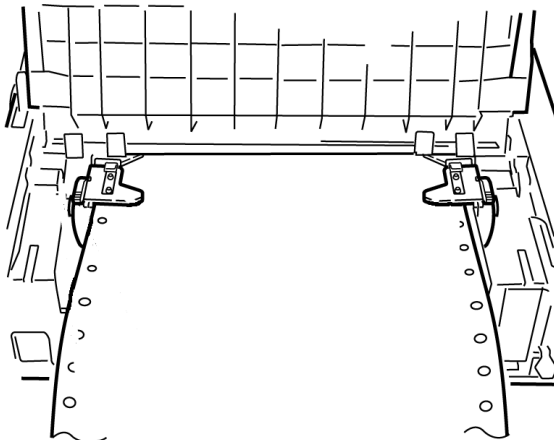
3. Open the access cover (1) and remove the pull-up roller assembly (2). Then grasp the tabs (3) on the sheet guide (4) and lift it off the printer.



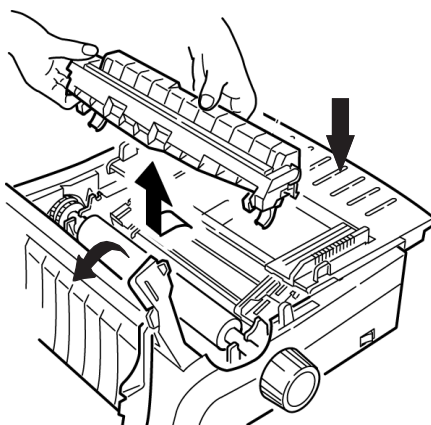
4. Remove any torn pieces of paper.
5. Fold some continuous form paper over three times to make a page four sheets thick. Then, load it on the tractors and close and lock the covers.



6. Use the platen knob to draw the quadruple-thick page around the platen. This brings out jammed pieces of paper.
7. Remove the paper pieces. Then, use the platen knob to back the paper out.
8. Load standard paper, close and lock the tractor covers.



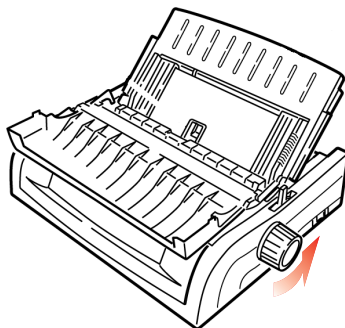
9. Install the sheet guide, then install the pull-up roller assembly and close the access cover.



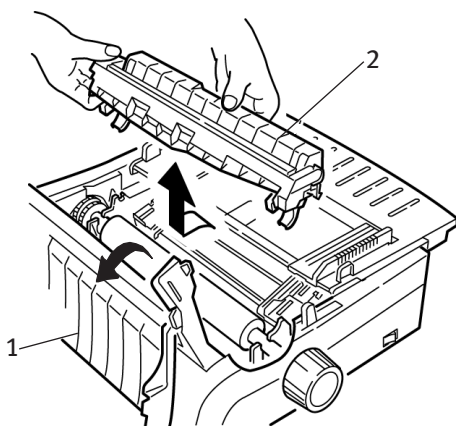
10. Turn the printer on and press **FF/LOAD**.

SINGLE SHEET PAPER JAMS

1. Turn off the printer.
2. Use the platen knob to back the paper out.



3. Open the access cover (1) and remove the pull-up roller assembly (2).



4. Remove any torn pieces from around the carriage.
5. Reinstall the pull-up roller assembly and close the access cover.

CLEANING THE HOUSING

You should clean the printer housing every six months (or after about 300 hours of operation).

CAUTION!

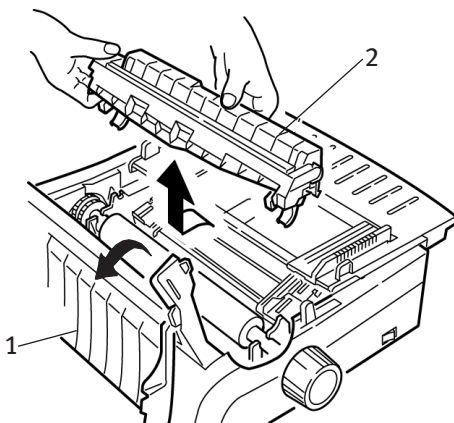
Never use strong solvents or strong detergents on the cabinet—they could damage the housing.

1. Turn off the printer.
2. Use the platen knob to back the paper out of the printer.

CAUTION!

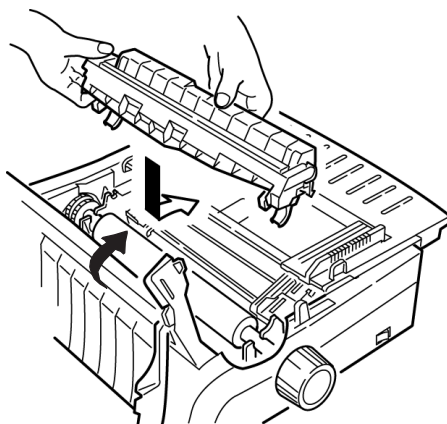
Make sure the printer is turned off before you open the access cover.

3. Open the access cover (1) and remove the pull-up roller assembly (2).



4. Use a clean, dry cloth to dust around the carriage shaft and platen. Remove any loose bits of paper.

5. Reinstall the pull-up roller assembly and close the access cover.



TROUBLESHOOTING

GENERAL INFORMATION

Here are some general things to check before proceeding with detailed troubleshooting.

- ❖ Is the printer plugged in and turned ON?
- ❖ Are the connections (power and interface) secure?
- ❖ Is the product being operated under the proper ambient conditions?
- ❖ Does the paper being used meet the specifications for this product?
- ❖ Is the paper properly installed?
- ❖ Is the ribbon properly installed?
- ❖ Is an Oki ribbon being used?
- ❖ Is the printhead gap correctly set?
- ❖ Are the correct printer drivers being used for the printer?

NOTE

- › Settings in your software application will normally override any settings in your printer driver.
- › Printer driver settings normally override settings from the printer menu or printer front panel.

Problem

My word processor files do not print the way I have the menu and front panel set.

Solution

Remember:

- ❖ Settings in your software application can override settings in your printer driver.

- ❖ Your printer driver settings can override any settings from the printer menu or printer front panel.

Before sending a file to the printer, many word processors send either an “initialisation string” or an **I-Prime** signal to the printer.

The initialisation string contains codes that override the panel and menu settings. To change your printer to ignore the reset code, enter the **Menu Mode**, go to the **Set-Up** group and change the setting for **Reset Inhibit** to **YES**.

The I-Prime signal will automatically override any front panel settings you have made. To eliminate this problem, enter the **Menu Mode**, go to the **Parallel Interface** group and change the setting for **I-Prime** to **Invalid**.

For more information on changing menu settings, see “Changing the Menu Settings” in chapter 3.

Problem

Nothing happens when I turn ON the printer.

Solution

Check the power cord connection to the outlet and to the printer. If you are using a power strip, make sure it is turned ON, and that the fuse hasn't blown or that the circuit breaker hasn't tripped.

Problem

The printer does not print when the computer sends data.

Solutions

1. Is the **SEL** light on? If not, press the **SEL** key.
2. Check that the interface cable is securely connected to both the printer and the computer.
3. If you have the optional serial interface board installed, check to be sure that it is firmly seated in the printer.

Problem

I'm getting strange symbols, incorrect fonts, etc., when I try to print a document.

Solutions

1. Check to be sure that the printer driver you have selected in your software matches the printer emulation.
2. Press **SHIFT** and **SEL** keys, then press **GROUP** key.
This will print a line showing the emulation you have selected.
3. If you have embedded any printer commands in your software, check to be sure that you entered them correctly.

Problem

Ink smears on the paper when I print narrow columns.

Solution

This may be caused by excessive printhead travel from the centering position. Enter the Menu and set the Centering Position to **MODE 1**. See “Using Your Printer, Menu Mode.”

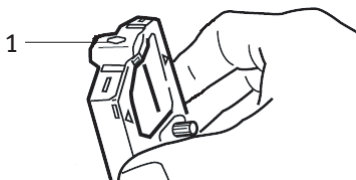
For the wide-carriage printer, if MODE 1 doesn't work, try setting the Centering Position to **MODE 2**.

Problem

I've installed a new ribbon and the printing is smeared and streaked.

Solution

The ribbon shield (1) is either loose or missing.



Remove the ribbon cartridge and check the ribbon shield.

- ❖ If it is loose, secure it.
- ❖ If it is missing, find it and install it.

Problem

There are dots missing in my printouts.

Solution

The head gap may not be set correctly. Try moving the headgap lever to a lower setting. If that doesn't help, the printhead may be damaged; call for service.

Problem

*The **ALARM** light is flashing.*

Solution

Try turning the printer **OFF** and then back **ON** again. If the light still blinks, call for service.

Problem

*The **ALARM** light is ON and the **Character Pitch 10** light is flashing.*

Solution

This indicates that the paper lever is set at the wrong position for the paper you are trying to use. Move it to the proper setting.

Problem

*The **ALARM** light is ON and the **Character Pitch 15** light is flashing.*

Solution

This indicates a paper jam. Press the **SEL** key and correct the paper jam situation. See "Clearing Paper Jams," in chapter 3.

Problem

*The printer needs paper. The **ALARM** is not ON and I can't load paper.*

Solution

1. Press and release the **SEL** key.
2. Press and hold the **SHIFT** key and press the **RESET / CHARACTER PITCH** key.

The **ALARM** light illuminates and you can now load paper.

Problem

Continuous form paper sticks to the sheet guide.

Solution

In cold dry weather, static charges can build up and make the paper cling to the sheet guide. Try moving the paper guides together so that the paper rests on the guides rather than on the separator.

Problem

The Print Quality and Character Pitch keys on the front panel don't work.

Solution

The Operator Panel Function in the printer menu can be used to disable these buttons (Limited Function). If the printer is part of a customized system or if it is used by a number of people, the system manager may have used this option to make sure the printer is always set properly.

Check with your system manager before changing any menu settings.

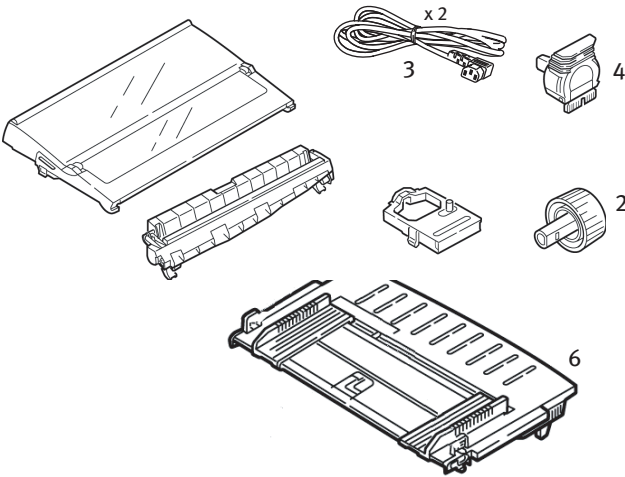
PARTS AND ACCESSORIES

Purchasing Parts & Accessories

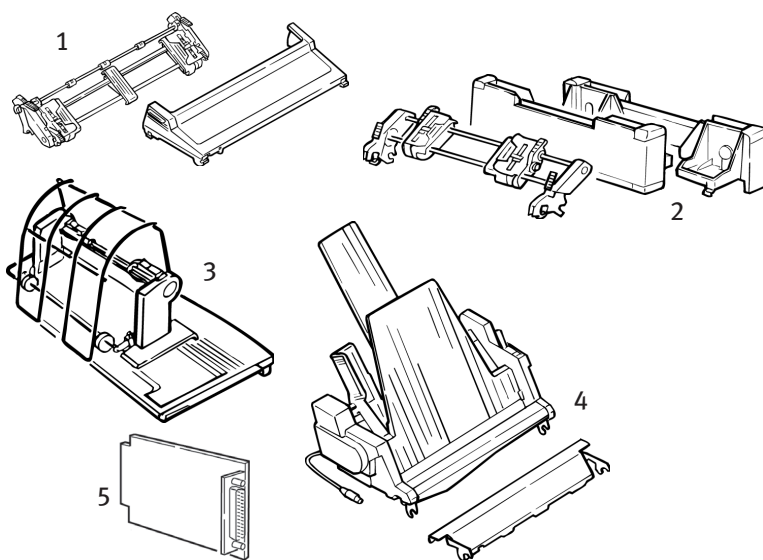
Before you purchase parts and accessories, make a note of your printer model number (see the front of the unit) and have the correct part number and description of the item you wish to purchase. Item descriptions and part numbers are provided in this section.

- ❖ Consult the dealer where you purchased your printer.
- ❖ Locate an Authorised Oki Data Reseller by visiting your local Oki web site. Links to all countries are provided on:

<http://www.okieurope.com>



ITEM	PART NUMBER ML5590	PART NUMBER ML5591
Ribbon Cartridge (1)	42377801	42377801
Platen Knob (2)	51902220	51902220
Power Cord (3) - Euro UK	YS4011-1272P001 YS4011-1273P001	
Printhead (4)	42124201	42124201
Access Cover (5)	42115401	42115301
Sheet Guide (6)	51009509	51009410
Pull-up Roller Assembly (7)	42044701	42045701



OPTION	PART NUMBER ML5590	PART NUMBER ML5591
Pull Tractor, Top-Mount (1)	70030501	70030601
Push Tractor, Bottom-Mount (2)	70030701	70030801
Roll Paper Stand (3)	70023301	N/A
Cut Sheet Feeder (4)	7003010	7003010
Serial Interface (5)	7001280	7001280
OkilAN® 6120i 10/100 Base-T Ethernet Internal Print Server (not shown)	70046501	70046501
OkilAN 6020e 10/100 Base-T Ethernet External Print Server (not shown)	70036001	70036001
OkilAN 6010 10 Base-T Ethernet External Print Server (not shown)	70034401	70034401

PRINTER CONTROL CODES

This section lists the most commonly used printer control codes.

You will find a comprehensive listing of the control codes (English only) on your Printer CD.

To access it:

1. Place the CD in your CD-ROM drive and wait for it to AutoPlay.
2. Select your printer model, then click **Continue**.
3. Click **Documentation** and follow the on-screen prompts to view the file.

EPSON LQ COMMANDS

EPSON COMMAND	ASCII	DECIMAL
Backspace	BS	8
Cancel	CAN	24
Carriage Return Execute	CR	13
Character Pitch:		
Select 10 cpi	DC2	18
Select 12 cpi	ESC:	27 58
Select 15 cpi	ESC G	27 103
Begin 10 cpi	ESC SI, or SI	27 15, OR 15
Cancel Condensed Print	DC2	18
Character Style:		
Normal	ESC q 0	27 113 48
Outline	ESC q 1	27 113 49
Shadow	ESC q 2	27 113 50
Outline with Shadow	ESC q 3	27 113 51
Delete	DEL	127
Double Height ON	ESC w 1 or ESC US 0	27 119 49 or 27 31 48
Double Height OFF	ESC w 0 or ESC US 1	27 119 48 or 27 31 49
Double Width ON	ESC W 1	27 87 49
Double Width OFF	ESC W 0	27 87 48
Double Width for one line	SO or ESC SO	14 or 27 14
Emphasised Printing ON	ESC E	27 69
Emphasised Printing OFF	ESC F	27 70
Enhanced Printing ON	ESC G	27 71
Enhanced Printing OFF	ESC H	27 72
Form Feed	FF	12

EPSON COMMAND	ASCII	DECIMAL
Form Length:		
n inches (n = 1 to 22)	ESC C NUL n	27 67 0 n
n lines (n = 1 to 127)	ESC C n	27 67 n
Horizontal Tab, Execute	HT	9
Italics ON	ESC 4	27 52
Italics OFF	ESC 5	27 53
Initialise Printer	ESC @	27 64
Justification		
Left	ESC a 0	27 97 48
Center	ESC a 1	27 97 49
Right	ESC a 2	27 97 50
Full	ESC a 3	27 97 51
Line Feed, Execute:		
w/ Carriage Return	LF	10
n/180" (n = 0 to 255)	ESC J n	27 74 n
n/360" (n = 1 to 255)	ESC] n	27 93
Reverse (n = 0 to 255)	ESC j n	27 106 n
Line Spacing set to:		
n/360" (n = 0 to 255)	ESC + n or ESC [n	27 43 or 27 91 n
n/180" (n = 0 to 255)	ESC 3 n	27 51
n/60" (n = 0 to 127)	ESC A n	27 65
n1/6"	ESC 2	27 50 n
1/8"	ESC 0	27 48
Paper Out Sensor OFF	ESC 8	27 56
Paper Out Sensor ON	ESC 9	27 57
Print Quality/Font, select:		
LQ	ESC x 1	27 120 49
Utility	ESC x 0	27 120 48
Roman (LQ only)	ESC k 0	27 107 48
Swiss (LQ only)	ESC k 1	27 107 49
Courier (LQ only)	ESC k 2	27 107 50
Prestige (LQ only)	ESC k 3	27 107 51
Orator (LQ only)	ESC k 7	27 107 55
Print Speed		
Half speed ON	ESC s 1	27 115 49
Half speed OFF	ESC s 0	27 115 48
Print Suppress Mode ON	DC3	19
Print Suppress Mode OFF	DC1	17
Proportional Spacing ON	ESC P 1	27 80 49
Proportional Spacing OFF	ESC P 0	27 80 48
Skip over perforation ON (n = 1 to 127)	ESC N n	27 78 n
Skip over perforation OFF	ESC O	27 79
Software I-Prime	ESC } NUL	27 125 0

EPSON COMMAND	ASCII	DECIMAL
Subscript ON	ESC S 1	27 83 49
Superscript ON	ESC S 0	27 83 48
Subscript/Superscript OFF	ESC T	27 84
Underline Printing ON	ESC - 1	27 45 49
Underline Printing OFF	ESC - 0	27 45 48
Uni-directional Print		
ON	ESC U 1	27 85 49
OFF	ESC U 0	27 85 48
One line only	ESC <	27 60
Upper Range Control Codes		
Permit Printing	ESC 6	27 54
Cancel Printing	ESC 7	27 55
Vertical Tab, Execute	VT	11

IBM COMMANDS

Proprinter X24e / XL24e and IBM X24 AGM / XL24e AGM

IBM COMMAND	ASCII	DECIMAL
Backspace	BS	8
Cancel	CAN	24
Carriage Return		
Execute	CR	13
Character Pitch. Select:		
10 cpi	DC2	18
12 cpi	ESC :	27 58
15 cpi	ESC g	27 103
Character Style:		
Normal	ESC q 0	27 113 48
Outline	ESC q 1	27 113 49
Shadow	ESC q 2	27 113 50
Outline with Shadow	ESC q 3	27 113 51
Condensed Print	ESC SI or SI	27 15 or 15
Double Width ON	ESC W 1	27 87 49
Double Width OFF	ESC W 0	27 87 48
Double Width for one line	SO	14
Emphasised Printing ON	ESC E	27 69
Emphasised Printing OFF	ESC F	27 70
Enhanced Printing ON	ESC G	27 71
Enhanced Printing OFF	ESC H	27 72
Form Feed	FF	12
Form Length:		
n inches (n = 1 to 255)	ESC C NUL n	27 67 0 n
n lines (n = 1 to 255)	ESC C n	27 67 n
Horizontal Tab, Execute	HT	9
IBM Character Set. Select:		
Set I	ESC 7	27 55
SET II	ESC 6	27 54
Print one Character from IBM Set III (n = 0 to 255)	ESC ^ n	27 94 n
Line Feed, Execute:		
w/ Carriage Return	LF	10
n/180" AGM only (n = 1 to 255)	ESC J n	27 74 n
n/216" PPR only (n = 0 to 255)	ESC J n	27 74 n
n/360" (n = 0 to 255)	ESC % 4 n	27 37 52 n
Reverse, n/216	ESC]	27 93
Auto Line feed ON	ESC 5 1	27 53 49
Auto Line Feed OFF	ESC 5 0	27 53 48

IBM COMMAND	ASCII	DECIMAL
Line Spacing. Set Spacing to:		
1/8"	ESC 0	27 48
7/72"	ESC 1	27 49 n
n/60" AGM only (n = 0 to 255)	ESC A n	27 65 n
n/72" PPR only (n = 0 to 255)	ESC A n	27 65 n
Activate Spacing Set by ESC A n	ESC 2	27 50
n/180" AGM only (n = 0 to 255)	ESC 3 n	27 51 n
n/216" PPR only (n = 0 to 255)	ESC 3 n	27 51 n
n/360" PPR only (n = 0 to 255)	ESC % 8 n	27 37 56 n
Overscore ON	ESC _ 1	27 95 49
Overscore OFF	ESC _ 0	27 95 48
Paper Out Sensor OFF	ESC 8	27 56
Paper Out Sensor ON	ESC 9	27 57
Print Quality/Font. Select:		
LQ Roman	ESC k 0	27 107 48
LQ Swiss	ESC k 1	27 107 49
LQ Courier	ESC k 2	27 107 50
LQ Prestige	ESC k 3	27 115 51
LQ Orator	ESC k 7	27 115 55
Print Suppress Mode ON - ML 5590	ESC Q \$	27 81 36
Print Suppress Mode ON - ML 5591	ESC Q #	27 81 35
Print Suppress Mode OFF	DC1	17
Proportional Spacing ON	ESC P 1	27 80 49
Proportional Spacing OFF	ESC P 0	27 80 48
Skip Over Perforation, ON (n = 1 to 255)	ESC N n	27 78 n
Skip Over Perforation, OFF	ESC O	27 79
Software I-Prime	ESC } NUL	27 125 0
Stop Printing	ESC j	27 106
Subscript ON	ESC S 1	27 83 49
Superscript ON	ESC S 0	27 83 48
Subscript/Superscript OFF	ESC T	27 84
Top of Form set at current position	ESC 4	27 52
Underline ON	ESC - 1	27 45 49
Underline OFF	ESC - 0	27 45 48
Uni-directional Printing:		
ON	ESC U 1	27 85 49
OFF	ESC U 0	27 85 48
Vertical Tab, Execute	VT	11

SPECIFICATIONS

ITEM		SPECIFICATION
Print Method		Impact dot matrix
Printhead		24 pins, 0.20 mm (0.0079") diameter, with thermal protection
Interfaces:		
Standard:		Centronics parallel, IEEE-1284 compliant USB 1.1
Optional:		RS-232C Serial Ethernet Print Servers: 6120i 10/100 Base-T, Internal 6020e 10/100 Base-T, External 6010e 10 Base-T, External
Receive Buffer Size		Maximum 128K
Reliability		
Ribbon Life		4 million characters, on average, 10 cpi utility
Printhead Life		200 million characters average in 10 cpi utility mode at 25% duty and 35% page density
Mean Time Between Failures (MTBF)		20,000 hours at 25% duty cycle and 35% page density
Mean Time to Repair (MTTR)		15 minutes
Emulations (co-resident)		Epson LQ IBM Proprinter X24e / XL24e IBM X24e AGM / XL24e AGM
Print Speed		Pitch Speed
High Speed Draft (HSD)		10 cpi 420 cps
Utility		10 cpi 315 cps
		12 cpi 378 cps
		15 cpi 472 cps
		17.1 cpi 269 cps
		20 cpi 315 cps
Letter Quality (LQ)		10 cpi 105 cps
		12 cpi 126 cps
		15 cpi 157 cps
		17.1 cpi 180 cps
		20 cpi 210 cps

cpi = Characters per inch
cps = Characters per second

ITEM	SPECIFICATION	
Characters per Line (cpl) Setting	ML5590	ML5591
10 cpi	80 cpl	136 cpl
12 cpi	96 cpl	163 cpl
15 cpi	120 cpl	204 cpl
17.1 cpi	137 cpl	233 cpl
20 cpi	160 cpl	272 cpl
Graphics Resolution	360 x 360 Dots per Inch (dpi) - 24 dot, hex density	
Resident Fonts		
Letter Quality	Courier, Gothic, Orator, Prestige, Roman, Swiss, Swiss Bold	
Utility	Gothic	
Bar Codes	Code 39 UPC A, UPC E EAN 8, EAN 13 Interleaved 2 of 5 Code 128 Postnet	
Paper Thickness: Tractor Feed		
Rear Feed:	0.014" (0.36 mm) max.	
Bottom Feed*:	0.017" (0.44 mm) max.	
*requires optional push or pull tractor.		
Resident Typefaces:		
LQ Courier	10 & 12 cpi:	Normal, Superscript, Subscript
	Proportional:	Normal, Superscript, Subscript
	8 point:	Normal
	Scalable:	11 to 64 point
LQ Letter Gothic	10 & 12 cpi:	Normal
	Proportional:	Normal
LQ Prestige	10 & 12 cpi:	Normal
	Proportional:	Normal
LQ Orator	10 & 12 cpi:	Normal
	Proportional:	Normal
LQ Roman	10 & 12 cpi:	Normal, Superscript, Subscript
	Proportional:	Normal
	8 point:	Normal
	Scalable:	11 to 64 point
LQ Swiss	10 & 12 cpi:	Normal, Superscript, Subscript
	Proportional:	Normal
	8 point:	Normal
	Scalable:	11 to 64 point
LQ Swiss Bold	10 & 12 cpi:	Normal
	Proportional:	Normal
Utility Gothic	10 & 12 cpi:	Normal, Superscript, Subscript
HSD Gothic	10 cpi:	Normal

ITEM	SPECIFICATION
Paper Specifications:	
Single (Cut) Sheets	Top only
Feed:	14 to 24 lb. US Bond (52.6 to 90 g/m ²)
Weight:	ML5590: 7.2" to 8.5" (183 to 216 mm)
Width Range:	ML5591: 7.2" to 14.3" (183 to 363.2 mm)
Single-part, continuous forms	Rear, Bottom*
Feed:	12 to 24 lb. US Bond (45 to 90 g/m ²)
Weight:	ML5590: 3" to 10" (76.2 to 254 mm)
Width Range:	ML5591: 3" to 16" (76.2 to 406.4 mm)
Carbonless continuous forms (orig. + 4 copies)	Rear, Bottom*
Feed:	9 to 11 lb.
Weight:	ML5590: 3" to 10" (76.2 to 254 mm)
Width Range:	ML5591: 3" to 16" (76.2 to 406.4 mm)
Interleaf continuous forms (orig. + 4 copies)	Rear, Bottom*
Feed:	10 to 12 lb. paper, 9 lb. carbon
Weight:	ML5590: 3" to 10" (76.2 to 254 mm)
Width Range:	ML5591: 3" to 16" (76.2 to 406.4 mm)
Labels	Bottom* only
Feed:	Not applicable
Weight:	ML5590: 3" to 10" (76.2 to 254 mm)
Width Range:	ML5591: 3" to 16" (76.2 to 406.4 mm)
Envelopes, single feed	Top only
Feed:	Max. 24 lb.
Weight:	6.5" to 9.5" (165 to 241 mm)
Envelopes, continuous feed, (non-overlap type)	Bottom* only
Feed:	Max. 24 lb.
Weight:	6.5" to 9.5" (165 to 241 mm)
Width Range:	
Card Stock	Bottom only*
Feed:	Max. 100 lb. Index (180 g/m ²)
Weight:	Not applicable
Width Range:	

* Bottom feed requires optional pull or push tractor

ITEM	SPECIFICATION
Environmental Requirements	
Temperature	
Operating:	41 to 95°F (5 to 36°C)
Storage:	14 to 122°F (-10 to 50°C)
Humidity	
Operating:	20 to 80% RH
Storage:	5 to 95% RH
Electrical Requirements	
	230 ac, (+15%, -14%)
	50 or 60 Hz (±2%)
	58W - typical, 10W - idle
Physical Specifications	
ML5590	
Size: (WxDxH*):	17.1" x 16.1" x 6"* (434 x 409 x 153 mm*)
Weight:	16.7 lbs. (7.6 kg)
ML5591	
Size (WxDxH*):	23.1" x 16.1" x 6"* (588 x 409 x 153 mm*)
Weight:	21.1 lbs. (9.6 kg)
	*Height dimensions do not include the acoustic cover

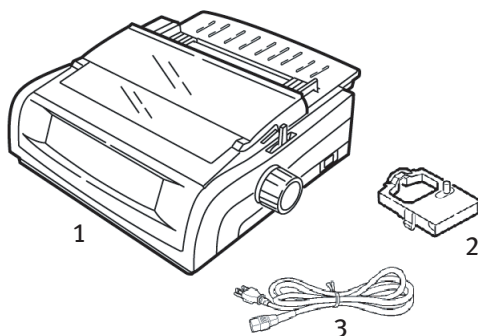
SETTING UP YOUR PRINTER

LOCATION

- ❖ Place your printer on a firm, solid surface.
- ❖ Allow enough space around the printer to easily access the platen knob and the various paper feed paths.
- ❖ Make sure a suitable grounded power outlet is available nearby.

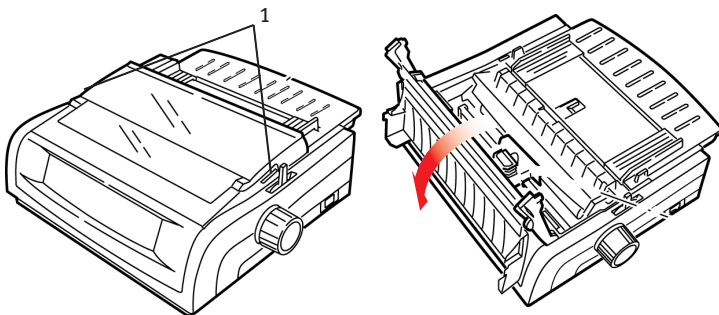
UNPACKING

- ❖ If any items are missing, contact your dealer immediately.
- ❖ Keep your packing materials and carton in case you ever need to ship or transport the printer.
- ❖ Interface cable and paper are sold separately.

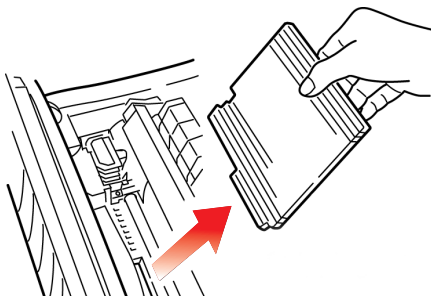


1. Printer
2. Ribbon Cartridge
3. Power Cord

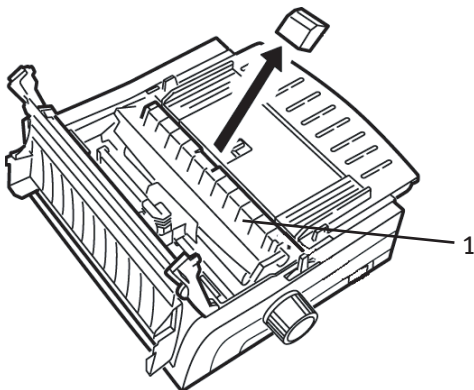
1. Remove any packing tape, then grasp the tabs (1) at either end of the access cover and pivot it towards the front of the printer as far as it will go.



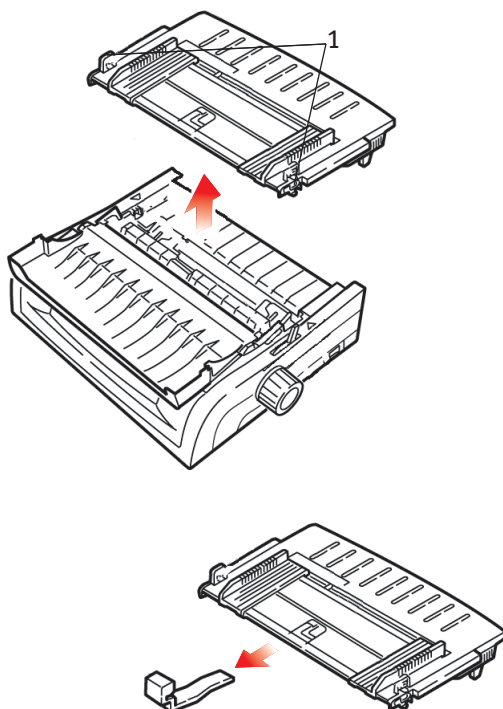
2. Remove the printhead shipping restraint.



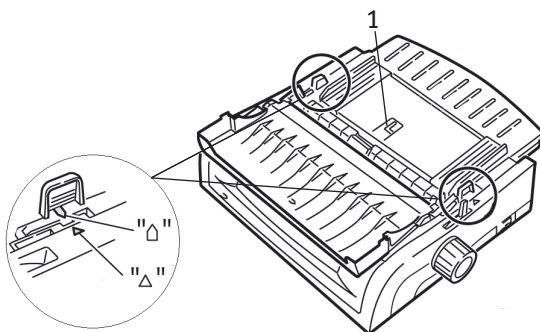
3. Remove the shipping restraint from the pull-up roller assembly (1).



4. Use the tabs (1) to lift and remove the sheet guide, then remove the shipping restraint.



5. Reinstall the sheet guide: insert the clips on either side of the separator into the notches marked with a triangle, then press down to secure the separator in place.



INSTALLING THE RIBBON CARTRIDGE

CAUTION!

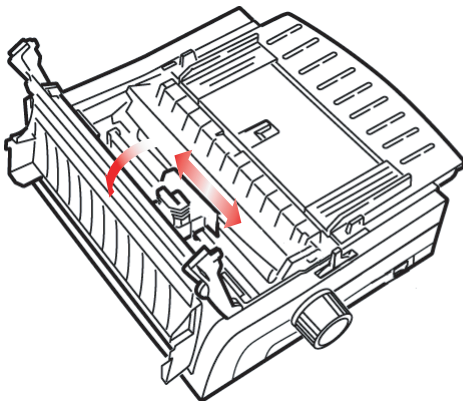
Make sure you have the correct replacement ribbon for your printer. The wrong ribbon will not print when installed in your printer.

RIBBON CARTRIDGE HANDLING

- ❖ Leave unused ribbon cartridges in their packages until needed.
- ❖ Careful; the ribbon ink may cause permanent stains.
- ❖ Ribbon ink on skin or clothing can usually be removed with soap and water.

Make sure the printer is turned OFF.

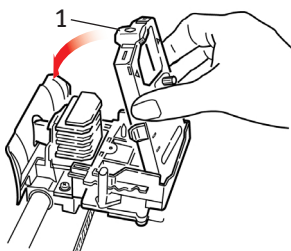
1. Open the access cover and center the printhead (1).



WARNING!

The printhead may be HOT.

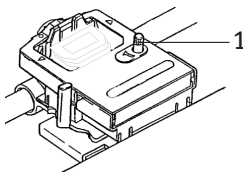
2. Unpack the new ribbon cartridge and install it on the printhead.



CAUTION!

Do not remove the ribbon shield (1) from the ribbon.

3. Turn the take-up knob (1) in the direction of the moulded arrow to take up any ribbon slack.

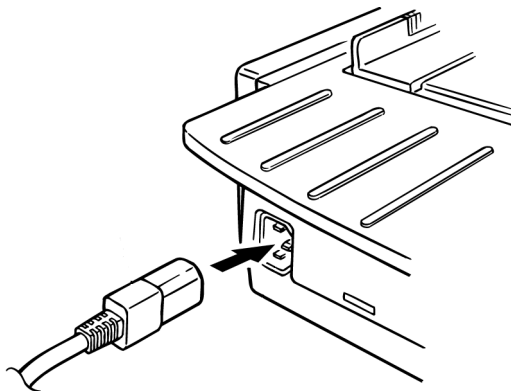


4. Close the access cover and turn the printer ON.

POWER CONNECTION

Make sure both the printer and the computer are OFF.

1. Plug the power cord into the back of the printer, then into a grounded outlet.



2. Turn on the printer.

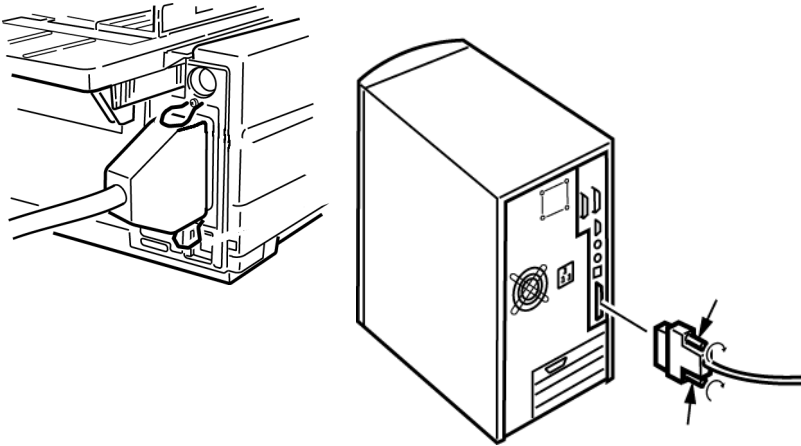
COMPUTER CONNECTIONS

PARALLEL (LPT), IEEE 1284

- ❖ Requires a bi-directional cable, max. length 6 ft. (1.8 m), not supplied.
- ❖ Printer has a 36-pin socket.

Make sure the printer and computer are both turned OFF.

1. Attach a suitable bi-directional cable to the parallel connector on the back of the printer. Then attach and secure the cable to your computer.



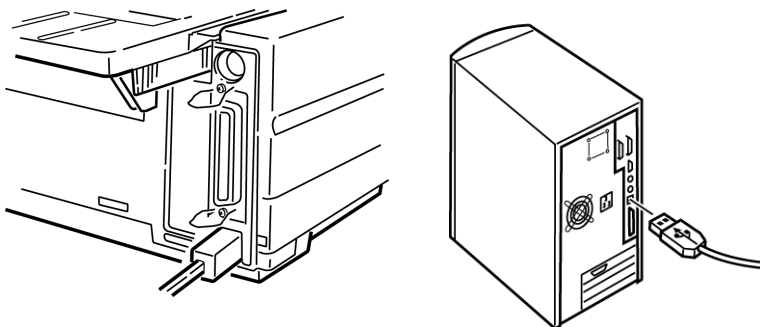
2. Turn the printer and computer back ON.

USB, SPECIFICATION 1.1 COMPLIANT

- ❖ Requires a USB 1.1 cable, maximum length 19.7 ft. (5 m), not supplied.
- ❖ Printer has a USB series “B” receptacle.

Make sure the printer and computer are both turned OFF.

3. Attach a suitable USB cable to the printer. Then attach the cable to your computer.



4. Turn the computer and printer back on.

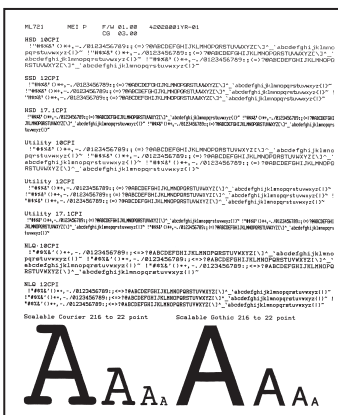
LOADING PAPER

For instructions on loading paper, see “Loading Paper” in the chapter on “Maintenance”.

TESTING THE PRINTER

- Font Sample Test
- Rolling ASCII Test
- Hexadecimal Dump Mode

Font Sample Test



CAUTION!

Wide carriage Model ML5591:

If you are using 8.5 inch paper to run the tests, make sure the paper width selection in the printer menu is set to 8.5 inches. Otherwise, printing on the platen may damage the printer. See the chapter on “Menu Mode” for more information.

The Font Sample Test prints a sample of the fonts standard to the printer.

The top of the printout shows the Printer Model, Emulation, Country Code, Interface, and Firmware Revision Level.

Make sure paper is loaded.

1. Turn the printer OFF.
2. Press and hold the **LF** key while turning the printer back ON.

The printer will print a page of font samples and the test ends.

Rolling ASCII Test

[illegible]

CAUTION!

Wide carriage Model ML5591:

If you are using 8.5 inch paper to run the tests, make sure the paper width selection in the printer menu is set to 8.5 inches. Otherwise, printing on the platen may damage the printer. See the chapter on “Menu Mode” for more information.

The Rolling ASCII Print Test produces a continuous printout of all 96 ASCII characters in a rolling pattern in whatever typeface is selected (default = LO Courier).

The top of the printout shows the Printer Model, Emulation, Country Code, and Firmware Revision Level.

Make sure continuous forms paper is loaded.

1. Turn the printer OFF.
2. Press and hold the **QUIET/TOF** key while turning the printer back ON. (If the printer comes on without starting the Rolling ASCII test print, you did not hold the QUIET/TOF key long enough.)

The printer prints the rolling ASCII text continuously.

- 3.** Press **SEL** to end the test.

Hexadecimal Dump Mode

When the printer is placed in the Hexadecimal Dump Mode, all data received, including text and printer commands, is printed in both hexadecimal and ASCII format.

For example, the following line of BASIC code

```
LPRINT CHR$ (27);"0";CHR$ (30);"THIS IS AN EXAMPLE OF A  
HEXADECIMAL DUMP."
```

would print like this:

1B	30	1B	54	68	69	73	20	69	73	20	61	6E	20	65	78	.0.This is an ex
61	6D	70	6C	65	20	67	66	20	61	20	68	65	78	61	64	ample of a hexad
65	63	69	6D	61	6C	20	64	75	6D	70	2B	0D	0A			ecimal dump...

NOTE

In the ASCII format, all non-printable characters are represented by a period.

To engage the Hexadecimal Dump Mode:

Make sure paper is loaded.

1. Turn the printer OFF.
2. Hold the **SEL** and **FF/LOAD** keys for several seconds while turning on the printer.

To exit the Hexadecimal Dump Mode:

1. Press the **SEL** key.
or
Turn the printer off, then on again.

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